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By James W. Winchester, Esq.

*Assistant Surgeon, 25th Regiment Bombay, N. I.*

(5)

*(From the India Review.)*

*Muscat.*—The voyage from Bombay to Muscat is usually performed in twenty days, and the approach to the shores of Hydramaut is indicated by numerous paper nautili floating on the surface of the sea of Oman. Gradually lofty rocks capped with clouds, at first indistinct haze, but soon assuming a bold and rugged outline mark the proximity to this inhospitable shore. Far as the eye can reach from Ras el Had to a white speck—Fahil island—save the coasting boats of the Arab nothing enlivens the scene, unless it be the wondrous narratives the seaman tells, of gusts of wind, which have rushed through a natural gap in the rocks, near cape Kuriat called the devil's gap, swamping many a boat. Suddenly as vessels close upon this black and gloomy coast Muscat cove opens, a deep bay, in Lat. 23 38 N. and long 58 41 E. formed by the high land of Arabia to the southward and westward, and on the east, by a lofty mass of rock called Muscat Island.* No place, in the world presents an aspect to the traveller more romantic, castle and turret surmounted peaks, lofty white houses built into the water, vessels of war, the property of Imaum, and numerous bigaras, batiles and huge patamars with their clumsy sterns and lofty prows at once are visible; and the Mosca of Arrian—the modern Muscat—proves Oman to be what it literally signifies, the land of peace and security. No vegetation, however, is visible, for the cove itself like the whole coast of Oman (which occupies the eastern angle of the peninsula of Arabia between Hydramaut and the mouth of the Persian Gulph), is composed of rugged black rocks of a forbidding aspect, utterly destitute of vegetation, which rise abrupt, and nearly perpendicular from the sea to a height of from 205 to 300 feet. The island of Muscat, or its east side, is a mass of hornblende gneiss, having its summits generally flat or round backed, regularly stratified near its base: but higher up presenting a seamed structure or that of distinct concretions, the strata dipping at an angle of 55° N. W. and having their direction N. E. and S W. The south and west sides are also high rock regularly stratified, in some parts considerably disintegrated, with castellated summits, while the strata runs in a direction nearly north at an angle of 65 degrees. The rocks are chiefly primary and transition, the oldest porpyry formation with veins of quartz is the most common, with gneiss and occasionally hornblende shist; while sandstone and limestone form those of the latter class. There is little or no beach in the cove, what there is being composed of grains of disintegrated quartzy, coral, and the other adjacent structures.

The town is built in a hollow valley, which extends to the south and west with a sandy soil towards the sea, and a pebbly one interiorly, unless where cultivation exists. The sea view of Muscat presents several large flat roofed houses of rather elegant form; beyond

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* Fa[illegible]land four or five miles to the north-westward, distant about three miles from the shore, and situated north of Muttrah point, is sometimes designated Muscat Island. What I have called Muscat island being connected by a low ridge of rocks, flooded at high water, to the *ground* on which the town is situated.

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these, however the town is not composed of large buildings, and without a decayed wall with a dry ditch: date huts alone form the habitation of the poorer and more numerous class of the people, and of strangers who are not permitted to live within the walls of the town. The streets, or rather lanes of Muscat are covered in with lyers of dried date leaves, and are so narrow that goods cannot be transported along them; except on the shoulders of Seedies or African slaves, who are to be hired, or purchased in the slave market. The cultivation mentioned is merely a few irrigated patches for vegetables surrounded by date trees, yet the town is well supplied from the interior with abundance of fruit and vegetables superior in quality to the native vegetables of India. Bullocks, of a small size, though of excellent quality, sheep, goats and fowls are easily procured; as are rice, dholl and other grains. The Arabs live, however, principally on fish, which is so abundant, as to form the greater part of the food of the domestic animals, who live entirely on dried fish, dates and chopped straw. Water is liberally furnished from wells dug in the lower part of the valley, and is of excellent quality.

The Arab and mixed population of Muscat exceeds 12,000, while the adjacent town of Muttrah contains nearly an equal-number. The inhabitants are civil, and obliging to European strangers, and the authorities invariably send off to vessels large presents of supplies beside affording them boats and water gratuitously. In conjunction with banyans, permitted residence in Muscat, and whose numbers amount to upwards of 1000 an extensive commerce is carried on with Persia, India and Arabia, and the Island of Zanzibar—an African possession of the Imaum's—famous for its gold, ivory, and slaves. The display of merchandise is striking. Bales of various sorts, and of every clime lie piled one above the other in the streets and on the Bunder, while the Bazars are crowded with the necessaries and luxuries of native life and their security is preserved by a well controuled police.

The climate of Muscat has always been considered unhealthy by Europeans and natives of India. The heats of summer are so excessive, that two Europeans were in one day struck momentarily dead by the sun last July, and the black rocks become so heated during the day that at night the land wind is invariably hot, in so much so that I have known it come down in such suffocating blasts that not a man was able to stay on the deck of the vessel. The winter, however, is pleasant, tempered with occasional showers of rain, and the delightful fruits, vegetables, and fish, among which I may enumerate the Seer fish, the roeball, the sardine, and oysters render a short visit to the cove pleasant, although in such dread is the place held that no European officer or man seeks to pass a night on shore. The Arabs, themselves look with no such horror on the climate, they are much subject to fevers, which when their doctors fail to cure, they move from the confined valley of Muscat, to Muttrah, which has an open aspect to the sea, and the change seldom fails to effect a cure.

*Ormus.*—After entering the Persian Gulph the first place that attracts notice is the far famed Ormus, a rocky and barren island, formerly, the seat of a commerce, which rendered it in the hands of the Portuguese, under Albuquerque, one of the most splendid Emporia of the East, now the property of the Imaum of Muscat, who owns also Gomberoon and the neighbouring island of Kishm, it has no export, save salt, which is found in vast abundance throughout the island.

The appearance of Ormus is striking and peculiar, huge dark rocky hills with occasional white gypseous peaks and cliffs vary a scene of desolation, for the soil denies all vegetation—save a few stunted shrubs—its northern extremity is flat and sandy, and has the Portuguese fort, a quadrangular building, with bastions and a citadel of great strength, whose only entrances are by two gates facing the south, each commanded by the other, and the whole protected by a ditch now only containing water at high tide, but which, from its breadth must have formerly at all times isolated the portion of the island the castle occupies. The walls are about fifty feet in height, very thick, and strongly built of a stone, resembling what is commonly designated "Whinstone." Interiorly the wall is erected into arches, which were used as store rooms and places of abode, while the court yard is the site of several large covered in tanks well and substantially built—of these, two are still in excellent repair, and could contain as many tuns of water, as would suffice for a considerable garrison. The Sheik or Governor of the place conducted us round the walls and to the citadel, which commands the rest of the fort; on it a few long 18 pounders—well honey combed—at present are mounted: but the whole building might easily be rendered again a stronghold of importance. To the right of the castle is the village of Ormus, a few date huts occupied by degenerated Arabs employed in the salt trade: beyond these are the fast decaying remains of a light house, which at one time must have been a lofty tower, for its present height is not less than 60 feet. The only other Portuguese ruin on the island, is that of a monastery or chapel fronting the fort: on the opposite side of a deep bay, in which ships might anchor protected by the guns of the fort, and from all winds within a few hundred yards of the beach.

In Ormus the prevailing rock is of a dark brown or reddish color owing to an impregnation of carbonate of iron, limestone, and sandstone, superimposed on a marly basis, containing spicular iron ore, and pyrites, crystallized into pentagonal dodechedrons, alternating with wite peaks and cliffs of gypsum, interrupting the dull uniform aspect of the island are the most common geognostic formations—while conglomerates of quartz, and felspar imbedded in a light grey hornstone, as well as pebbles of a greenish chert, plasma, and brown, and red flint are frequently seen. The island is said also to produce copper and sulphur; I could obtain no specimens of copper, and sulphur is procurable in quantities so small, that while the sulphur mines of Cumneer, on the main land produce that article so plentifully, it becomes a matter of no object for the natives to search after it on Ormus. Salt arising from the evaporation of the water of saline springs left in the vallies and from rock salt found in layers in the gypseous and marly hills is the only production employed, for with this one exception the island has now no resources, being without fresh water, the inhabitants trusting to the rain filling the tanks and on the neighbouring coast, which is but a few miles distant, for every supply.

*Bunder Abbas*—Situated under the high land of Gomberoon, which rises to a height of nearly 8000 feet, above the level of the ocean, is the walled town of Bunder Abbas, whose reviving importance, and its belonging to a potentate favorable to British interests makes it the next place worthy of attention.

The first striking object observed is the factory erected by the Portuguese, within two hundred yards of the sea, extending almost the whole length of the town. This building is lofty and has an arched gateway leading to a court yard of great extent occupied on all sides with the ruins of store rooms, which at once prove how great European commercial intercourse must have formerly been. Behind the factory—which is at present the dwelling of the Governor—is the town, surrounded by walls having a square tower at each angle. The houses are many of them well and substantially built, and the bazars are extensive, displaying considerable quantities of English and Persian manufacture. The town itself may contain a population of 6000, but, as at Muscat, a considerable portion of the inhabitants live without the walls in date huts or other temporary dwellings. The town has no bunder, or stone pier close to which ships or boats can approach; but the deep bay in which it affords anchorage for vessels of considerable burthen within a mile of the shore, and from its being safe at all seasons, no difficulty is experienced in landing or shipping goods.

Bunder Abbas is 18 days' journey distant from Shiraz: but the natives informed me that the road was much preferable to that between Bushire and Shiraz, though the journey between the two latter is usually performed in 10 days, and that if the place again belonged to the Shah it would be preferred as the place of export and import for the South of Persia; be this as it may, it carries off to the injury of the Persian revenue much of the commerce of Bushire.

The surrounding country presents rather a barren aspect; but farther in it is said, in favorable seasons, or if irrigated, to be very fertile. Fruits such as apples, quinces, pears, grapes, apricots and peaches of excellent flavor and equal certainly to those of Ispahan, are in abundance, while the average price of grains is less than at Bushire. On inquiry as to the supplies, that could be gathered in a couple of months it was ascertained that a thousand Hashemy maunds (127lbs.) of wheat and rice, with nearly a similar quantity of barley, chopped straw, as forage, for 500 horse, 2000 bullocks and 1000 camels could be collected in the surrounding country, Mules were said to be scarce: but I do not imagine an army would find much difficulty in procuring carriage and supplies marching from Bunder Abbas into Persia, chiefly from its being in the dominions of the Imaum, our firm ally, who could command from the opposite town of Kishm, and from Minnow, a place of some size, thirty miles distant in a direction nearly S. E. their quota of maintenance for troops. Water is abundant from wells, and is superior to what is generally obtained on the main land in the Persian Gulf.

Excepting the remains of Portuguese tanks or reservoirs for collecting rain water, and a few tombs no objects of interest present themselves in the vicinity of the town. The tanks are extensive, covered in, and built in the form of a cross, with a large centre dome and four smaller ones at each point: now, they are almost choaked up with sand; with little labor, however, they might be easily cleansed and repaired. Hard by are the tombs, some of which are elegant domes, supported on pillars—two of them, in the form of a Greek cross are highly ornamented by carving; but the others are meaner in their execution, and the greatest number are simple obelisks.

*Kishm.*—The once fertile Kishm is now almost a barren island. With the exception of Bassadore on its N. W. extremity—the naval station of the Gulf—no part of it demands remark.

Bassadore, from the extent of ruins close upon the beach, must have been a station under the Portuguese of some size: under the British it has never been otherwise than a naval depot, though, at the time of Benibou Aly some troops, as a temporary measure, were placed on this spot. Situated on a neck of land, surrounded by an extensive mud shore exposed to the sun's rays at low water, and in the vicinity of a large salt marsh, on which is an interminable jungle of mangrove, it has always been found a highly unhealthy place, in so much so that few Europeans have ever resided for any length of time without being affected with fever, which in most cases terminated fatally, or forced the individual to seek a change of climate. The natives suffer equally at particular seasons, but their fevers neither assume that violent nor fatal type, that they do among Europeans, and the population from this cause consists merely of a few bazar followers, and about one hundred natives, who live at a village called Nicklestan, surrounded by a cluster of date trees in a hollow about a mile distant. Here there are wells of fresh water, at which ships used formerly to water: but at present the station is supplied from built and covered in reservoirs containing rain water, and vessels of war water either at Aysha, or Lingar on the main land—likewise from thence and other neighbouring sea ports all the supplies of the station are obtained.

The appearance of this part of Kishm is truly miserable, barren to a degree, and at the changes of the seasons—June and October—so extremely fatal to the European constitution that it is a station, which unless for the advantages it possesses in the proximity of the anchorage to the shore, is never likely to become of any importance; indeed there are few who have, or ever had, any connection with this depot who do not wish for its being abolished, and either the Kause of Kenn, or the island of Karrack chosen in its stead.

The rock on the island, which in its greatest height does not rise 500 feet above the sea's level is generally composed of limestone, surmounted by a capping of coralline sandstone, extremely hard and sonorous. Frequently, however, I found this sandstone in layers, ridges and blocks, resting on beds of white grey, and yellow marl, abounding in fossil oyster and calm shells, with coral, on which the action of the air and rain had, in many spots, caused by the washing and wearing away of the marly basis singular grotesque shapes, and often truly grand semblances to the ruins of architectural structures.

*Lingar.*—Lingar is a small town on the Persian coast near Cape Bosfana in latitude 26° 33 N. Long. 55° 50, E. distant from Bassadore about thirty miles and inhabited chiefly by Arabs, whose Sheik or Governor is independent of Persia or the Imaum, in as far as concerns revenue and the internal management of his Government. The East India Company have a native agent here, and their vessels of war frequently anchor off the town, which has a population of about 4000 inhabitants and possesses some shipping, but no bunder. Lingar is pleasantly built on a rising beach, close upon the sea, with a back ground thick with tall well foliaged date trees, among which are several patches of irrigated cultivation and the ruins of several Portuguese reservoirs, similar to those found in the vicinity of Bunder Abbas. The surrounding country is barren and rocky; the soil is entirely sand and rock, whose formation is peculiar, being what is usually denominated a shell bank, of a formation very recent, for in no place is the stone so hard, as to be capable of the slightest polish. Mixed up with the sandstone and liberally distributed over the soil, are pieces of Tubipora, not fossil, which prove that these Lithophytes have been concerned in the formation of the bank.*

There is no high land near Lingar; but there are mountains of considerable elevation distant about 20 miles, surrounding the plain on which it is situated, and which is also occupied by several villages and the ruins of a considerable Portuguese settlement near Aysha, where good water is obtained in great abundance, by vessels anchoring in seven fathoms about half a mile from the shore, well protected by cape Bostana from the North West, and by the high land from the South East winds, though other ways the anchorage is open and unprotected.

A moderate quantity of supplies for ships is easily procured at Lingar, but the sheep and goats are small and frequently bad, in so much so, that I have seen a full grown sheep, when served out to the ship's crew weigh only fourteen pounds.

The whole coast from Cape Bostana to the low sandy point on which Bushire (which is the only place of any importance and worthy of notice) is situated, is composed, of a chain of lofty mountains, which vessels generally approach so near, that their features are distinctly visible, rising as they do to a height of nearly 3,000 feet with flat table summits from which great deep, ribbed looking ridges fall, on jutting out portions of rock lower down, which seem as if made by the mass from above scooped away to form these singular perpendicular ridges uniformly existing throughout the whole range; from their feet irregular and tabular masses, are continued till they become lost in a gradual slope that stretches to the sea, and the whole is of a uniform dull grey color, destitute of vegetation.

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* Cuvier thus describes the formation of shell banks: "When the nature of the sand, and of the water, which is raised with it, are such as to form a durable cement, the shells and bones thrown upon the beach become encrusted with it. Large quantities of animals inhabiting shells leave their stony coverings, when they die, and these become cemented by a slime of greater or less consistence, or by other cementing substances and forms extensive deposits or shell banks." The whole Persian coast in the Gulf has this geognostic structure.

*Bushire.*—Bushire in Lat. 29° N. and Long. 40° 54 E. is situated on the northern extremity of a low rock of land formed by the sea on one side, and on the other by a creek ending in extensive swamps. Formerly at the equinoctial spring tides the sea rose so high as to isolate the town; but latterly this has not occurred, although frequently the water approaches within a few hundred yards of the town on its land side, giving it almost an insular appearance. The portion of land, which forms this Peninsula has been reclaimed from the sea: the soil is fine sand and mud, with a rocky base of sandstone, mixed with innumerable shells of so soft a nature as to crumble under the slightest blow into fine dust. Its seaward aspect is somewhat elevated and rocky, and from the constant action of the tides, and the soft nature of the stone, it is hollowed into innumerable grotesque shapes. Inland the plain is continued for many miles, surrounded by rocky ranges of mountains, and is the most extensive low land on the Persian side of the Gulph. It is generally termed "Dashtistan." Its fertility beyond the immediate vicinity of Bushire is considerable, the soil being good and producing either consequent on the rains, or by irrigation, abundant crops. Crystals of sulphate of lime, thickly cover the soil, which is chiefly calcareous, and has its origin from the disintegration of the neighbouring mountains, which consist invariably of limestone and gypsum. The former of a grey or yellow color, compact and splintery, assumes often a stratified form dipping to the N. and N. E. at angles from 15° to 40°, but often disturbed and distorted as if by violence; while the latter appears sometimes to compose whole hills, though most commonly it is only seen in masses and veins, or in lumps of the purest alabaster.

The town is built in a triangular shape, fortified only on the land side. The wall incloses a larger space than is occupied by houses, and the south end of the town is a mass of ruins, now uninclosed. These ruins were an addition to the town made many years ago, and it is only within the last twelve months, that the wall was rebuilt to enclose a space equal to the original limits of Bushire. The appearance of the town from the roads is good, the larger houses all face towards the sea, and their lofty wind towers add much to the flat roofs of the houses which are of an uniform dull grey colour, simple in their architecture and without ornaments of any description. From the plain only the wall is exhibited, which is about thirty feet high and five or six thick, with an occasional tower and two gates, near which, (outside them) are a few well honey-combed pieces of ordnance, mounted on carriages totally unfit for service. The only cannon in the place are these, none being mounted on the walls, or on the bastions, merely used for firing salutes; they are unfit for defence, as the state of the carriages would not permit their being elevated or depressed, nor their being moved to any other position than that which they now occupy.

Besides the houses, which are crowded towards the sea, the wall incloses a number of date huts, the residence of strangers, slaves, and the poorer inhabitants. The houses are often lofty, and those of the richer part of the community, have wind towers, rising fifteen and twenty feet above the tops of the houses, open on all sides to catch and convey into the rooms below the slightest breath of wind. The streets are very narrow and dusty, from the constant decomposition of soft sandstone, already described, which is the only building material found. That part of the town, which is near the inlet of the sea, possessed two stone piers close to which boats of one and two hundred candies can load and unload; and in the immediate vicinity of these bunders are several extensive ware-houses, a caravansera, in which the chief mercantile transactions of the port are concluded, and the bazars, which are of considerable extent, running in a direction east and west. These are covered in, and exhibit an opulent appearance, and much regularity pervades them,—the various venders of different merchandise and workshops having each their portion of the bazar allotted to them. English manufacture has a prominent place, while the cloths of Turkey, the chintzes of Germany, and the native woollen and silk productions are in considerable quantity. The necessaries of life, such as flour, wheat, rice and the other grains of the country, along with quantities of sweatmeats, sherbets, fruits and vegetables are most abundant, marking that the surrounding country possesses in this repect ample resources.

The population of Bushire is about 10,000, and the inhabitants are a mixed race, between the Arab and the Persian, possessing in common the characteristic features and manners of both intimately blended. Morrier says, "The coast of the Gulph was lined for ages with petty sovereignities of Arab Sheiks, who while they occupied the shores yielded a very uncertain obedience to the monarch of the interior. Of these the Sheiks of Bushire longest retained their real independence, perhaps from the physical situation of the country, it being low land and immediately under the hills, thus separated in a measure from Persia." Since, however, it has become a Persian sea-port, and Bunder Abbas a possession of the Emaum of Muscat, Bushire has risen to be the principal emporium of trade in the Gulph, and has been much frequented by the merchants of Shiraz, and other large towns in the interior, many of whom have become settlers in the town.

English mercantile transactions with this Sea-port are conducted in a great measure through the agency of Armenians, who bear very respectable characters and are more trustworthy than the people of that race generally are. A few Jews have residence in Bushire;

but they are very degraded, and live chiefly by supplying the English sailors with the arrack and other spirituous liquors. The majority of the inhabitants are far from civil to the English, and they look upon us with contempt, imagining themselves to be infinitely superior in every respect. They would however be speedily brought to think differently if Bushire was occupied by a British force, and would not, I think, from their cowardly habits, offer the slightest resistance to British troops, although Sepoy Regiments would, I am certain, be opposed stoutly and have to contend with a people their superiors in physical strength. The regular troops, in Bushire, do not exceed two hundred ; but on occasions, militia, of the inhabitants capable of bearing arms, act as soldiers and arm themselves with spears, matchlocks and sabres.

The quantity of supplies procurable at Bushire are considerable. Wheat is sold at an average price of four rupees for a Hashemy maund (127 lbs.) Chopped straw for forage is plentiful and the only food horses are allowed. Rice from Shiraz and India is always obtained, and the more common grains such as Bajree &c. are abundant. Bullocks and sheep are of good quality though small. The fowls of Bushire are famous for their size and the delicacy of their flesh. Vegetables, viz. onions—the sweet potatoe—the common potatoe is cultivated with some success in private gardens—bringols—carrots—beet-root and radish are grown in the vicinity, and fruits are brought from the villages of the plain and the plains beyond and among the mountains, in such plenty as to be old for a mere trifle : they are the black grape of Shiraz—the common grape—the musk and water melon, occasionally the Ispahan melon, the finest in the world, plums, pomegranites, apricots, peaches, dates, apples, pears, quinces, sweet limes and oranges. Dried cherries, plums "Allah Bokhara," grapes, almonds, walnuts, figs. Pistachio nuts, &c, are also sold in the bazar and exported in great quantities annually.

The supply of fish in the market is not abundant and cannot be calculated upon.

No water fit for culinary purposes is obtained within the town. The wells, which supply the inhabitants are on a slight rising ground two miles S. E. of Bushire, and their water is very brackish, and has a purgative effect on all strangers, though after a time this power is lost and then only at the springs its taste is recognised to be different by those accustomed to its use from pure water. Water is obtained at an average of fifteen feet from the surface: but thirty feet is no uncommon depth to dig wells, three layers of soft stone composed of sand and shells being passed through. The quality is unlimited, but should the plain of Bushire be occupied by a hostile force, chains of out posts would be necessary for the protection of the wells, otherwise water would require to be brought in boats or ships from the Island of Kargh, which yields a constant supply from natural springs.

Date and konar trees are the only wood growing on the plain, and that not in great quantity, consequently fire-wood is expensive being brought in boats from also along the coast. It consists in a great measure of mangrove.

The animals are the horse, the mule, ass, bullocks, sheep, dogs, the white and the common fox, wolf, hyena, porcupine, antelope "Antilope Subgutturosa, the Persian Gazette." Ibex, wild boar, the zerboa, and occasionally the wild goat. Pigeons, curlews, cormorants and the hoobara, a small bustard, are the most common birds, game is far from abundant.

Mules and asses are the principal animals of burthen : the rocky nature of the road to Shiraz and other places interior, is such that camels are nearly useless, and I have seldom seen that valuable animal at Bushire. Horses of size and bone are brought in great numbers thither annually and exported to India. Those bred in the Dashtistan have a great deal of the Arab blood in them, and great care is taken in rearing them. Their average price is from 250 to 400 Rupees, and vessels and boats take them to Bombay for 40 and 50 Rupees a head. The price of a good mule varies from 80 to 150 Rupees ; that of asses from 30 to 50 Rupees : those from the Island of Bharein, which are of superior size and of more indurance than the common ass are sold frequently as high as 100 Rupees.

Bushire, as already remarked, is nine days' journey from Shiraz, and the road though rocky is with additional draught and pioneering practicable for artillery. Troops must be supplied from their own commissariat till their arrival at Shiraz, and they would require to remain some time in the plain, before the necessary carriage could be collected, so as to enable them to enter Persia efficient. Bussorah, four days' sail to Bushire and the villages on the banks of the Bussorah river, would afford a large quota of both supplies and carriage for an invading army. Vessels of war and merchant ships anchor in a well protected roadstead, within three miles of the town, in seven fathoms water, with good holding ground. One narrow channel permits a brig of war drawing 12 or 13 feet water to approach close under the residency, which is at the south end of Bushire but others of greater burthen would be perfectly useless, and their boats or flat bottomed boats made on purpose, would be the only means of attacking the town from the sea. Troops can however be landed a mile below Bushire, with every facility, to occupy the heights on which the wells are, while vessels of war by strict blockade preventing all communication with other sea ports would soon compel the place to surrender from want of water and provision without even throwing shells into the town, which from the crowded state of the houses and the bad stone with which they are built would soon crumble to pieces.

The climate from September to May is pleasant and salubrious. The cold of the months of December, January, and February is bracing; but the heats of June, July, and August are excessive.

Karrak or Kargh is a small rocky island, twelve miles square, distant thirty miles in a direction North West from Bushire, whose local position is very favourable to commerce as it commands the navigation of the Bussorah river and has an easy communication, of a few hours sail, with the Persian and Arab shores.

Towards the end of the eighteenth century it was occupied by the Dutch, under Barron Kniphausen who obtained a right to the Island from the Shaik of Bundareib and fortified it. During his government the population rose in eleven years from one hundred poor pilots and fishermen to eleven thousand, but when the Dutch were driven from the place its importance rapidly diminished, and now the fort of Kargh does not contain 100 inhabitants whose chief employment is to pilot vessels up the Bussorah river.

The southern extremity of the island is rocky and elevated nearly three hundred feet above the level of the sea, while the other end is low and sandy, having the fort of Kargh on its N. E. point. The rocky portion rises abruptly from the sea, and its summit is a table land, which has on the greater part of its surface a thin loomy soil cultivated in the rainy season. The sides of the ridges presented to the sea are broken in upon by several deep and broad fissures, extending into the table land upwards of three or four hundred yards, in whose hollows huge masses of stone are deposited as if they had fallen there on the formation of the fissures. The rock is composed of coralline sandstone and limestone, also plentifully mixed with fossil Subipora, with an appearance of horizontal stratification: but most commonly present only in huge tabular masses of various thickness superimposed on a loose sandy basis, abounding with disintegrated particles of limestone, sulphate of lime and talc, occasionally assuming a stratified formation, with the strata of different colours but never approaching to hardness. A soft limestone, resembling chalk, the newest of the limestone series now and then occurs, but no other geognostic formations are found. In the limestone numerous oyster, cockle, lamprey and a variety of other small shells are obtained. Fossils coeval with the island's formation, which is Neptunian and has by some convulsion of nature been raised from the bottom of the sea at a period later than the primary formation of the neighbouring continent. The table land is occasionally broken by ravines and towards its Northern boundry it becomes irregular and sloping—smaller mounds leading gradually down to the sandy plain. Here the soil formed by the disintegrated rock mixed with the sand is tolerable and might be cultivated if the slope was sufficiently extensive and regular: as it is, many of the ravines are gardens in which are fruit trees and vegetables, while in the clefts of the rock above, vines are planted enclosed by circular stone walls, which cause many parts of the rock to appear as if covered with ruins.

The low part of the island possesses a sandy soil, mixed with particles of disintegrated rock, and capable, when irrigated, of growing crops. About one hundred and fifty acres are thus employed by the inhabitants, and upwards of five hundred are cultivated during the cold season, when the rains fall. The soil is meagre: but is capable of great improvement. The beach is of small breadth and rises somewhat abruptly from the sea, whose bottom is covered with coral rocks: its sand is firm and intermixed with calcareous particles, by constant attrition formed into a variety of shapes, and dead shells, it is without pebbles either quartzy or siliceous.

Near a large tomb, in the centre of the island and facing the north on the side of the rocky hill, are two caves cut out in the solid stone. The largest excavation is about fifteen feet square and eight feet in height—once divided by pillars and arches into regular compartments but now defaced by time. The other cave has a similar appearance, there being now neither figure nor carving in either to mark the age when they were first formed. Besides these two caves, there are a number of holes, square and circular, cut into the rock—unfit places for Troglodytes, and in their immediate vicinity is an incription roughly cut, resembling the Pelvic character, which with their general appearance gives them the stamp of antiquity. Ives supposed they were the habitations of the first settlers on the island, but it is very probable they may have been used for the performance of the religious ceremonies of the Guelres or fire-worshippers.

The present inhabitants are degenerated Arabs, who live within the walls of the Fort (still in tolerable repair) which inclose a space much larger than is now required, though many gardens are attached to the houses. Their occupation besides piloting vessels up the Bussorah river is fishing, proceeding to the banks of the Shah-el-Arab in the date season, and on their return cultivating the soil both of Kargh and Corgo, a low sandy island, three miles long and about two miles distant N. W from Kargh, uninhabited the greater part of the year. The grains grown are maise, barley and wheat. Bringoles "Hibiscus Succulentus" radishes, beans, and gourds are abundant, but fruits are scarce; a few grapes and water melons of inferior quality can only be procured at times.

The Botanical productions of the island are limited, I observed the Phœnix Dactylifera, a Ficus Indica, Salix Babylonica, Accacia Arabica, Ziziphus Jubaba, Tamarix Indica, Gosypium, Gramineæ, Hydysarum Alhagi, Salsola Nudiflora, Euphorbia Sirucelli, Cucumis Colocynthis, some of the common fruit trees of Persia, and on the rocks a few aromatic shrubs. The wood on the island is not sufficient to supply fuel, which is brought in small boats from the neighboring coasts and is principally the stems and branches of the Rizophora mangle.

Bullocks and sheep are fed on the island: but with the exception of a few antelope no animal exists in a state of nature. Partridges and quail are frequently seen: sea fowl are abundant. Turtle have been occasionally caught on the beach. The supply of fish is abundant and of superior quality. Bushire, Bussorah, and the banks of the Euphrates afford supplies in the greatest abundance for troops stationed on Karak, and the embouchure of the Euphrates unlike the mouths of the Indus is always accessible.

The supply of water in Kargh is abundant and of excellent quality. It is obtained either by digging wells twenty feet below the surface or from subterraneous aqueducts, which extend often from the centre, or from one side of the rocky part of the Island to the other. These underground channels were found by the Dutch, and were believed by them to be very antient. They extend inwards often a mile in the solid rock, and holes circular and square are cut down upon them, from ten to fifteen feet deep, to admit fresh air and light, in order to permit the inhabitants to pass up and remove any accumulations likely to choke them. Their mouths are generally in a low arched cavern formed by nature, and it is not until some distance inwards that they exhibit art as having been had recourse to for their formation. It is, therefore, most probable that these springs having been discovered issuing from the rock by the first settlers on the island, were followed up to their sources to insure a constant supply of water. Their courses are commonly in a straight direction, and their beds run on a soft calcareous soil the basis on which the coralline rock of the island is superincumbent, and which has been originally removed for the construction of these aqueducts, so that almost invariably the rock forms their roof down through which places for the admission of air and light are cut. The streams from these springs are small but constant, and frequently terminable in a large pool, outside the cavern, in a ravine, whose hollow exhibits an abundance of natural vegetation or is converted into a garden by the natives.

The climate of this island had always been deemed very salubrious. Sir John Malcolm in his history of Persia says, " The island of Karak is very healthy, has plenty of fresh water and in some places a good soil." The atmosphere is less moist than that of Bushire; indeed, so much so, that the depression of the moist bulb generally ranged during the last hot season during the day from 6° to 17° and at times to upwards of 20° while the maximum temperature seldom exceeded in tents 94° F. and with cuscus, or jowasee tatties could be kept when a northerly wind blew—the south wind was uniformly moist as low as 76°. The troops, European and native, during the period I was in the Persian Gulph were free from fevers and enjoyed excellent health which they are said to continue to do.

The manner in which the graves in this island are formed deserves notice. They are dug down through the soft soil to the rock, which is then cut sufficient to admit a body to be placed on its side with the face towards the kaaba, the head being slightly elevated on a stone cushion—in this position the vault may be closed by square stones, over which the soil is thrown without disturbing the dead. Several of these in the part of the island allotted as Burial ground are ready prepared: and it is the custom of the person who has this duty assigned to him, not to omit forming a fresh sepulchre, when each necessity occasions one being used.

**Sharga** is situated on the Arabian side of the Persian Gulph in Lat. 25° 29′ 45.″ N. and longitude 55° 29′ 15″ E. and is a town of considerable size containing upwards of 2000 inhabitants, who previous to the ascendancy of British power in the Gulph were more or less engaged in piracy, a predatory mode of life their inclination still leads them to follow as their occasional plunderings on this and the Arab coast below prove. The town is built on a sandy beach, and has between it and the sea a beautiful creek, extending several miles in a direction parallel to the coast, with its entrance about a mile N. E. of the town. Its breadth varies from about 100 to 150 yards, and it is deep enough at high water to permit boats drawing five or six feet of water to sail up and anchor close by Sharga. The houses are with a few exceptions built of reeds and the leaves of the date tree: stone edifices, which are far from numerous are composed of masses of coral, dug out of the soil, cemented by a plaster of the coral burnt. There is no bazar, and the town is unprotected by walls, but here and there a tower rears itself at an angle so as to protect and command the different buildings. Supplies in Sharga are limited; bullocks, however, are procurable as well as a few sheep and fowls; water is abundant, and possesses a peculiar and somewhat agreeable sweetish taste, without becoming brackish when kept.

The appearance of the inhabitants, who are Arabs of the Joasmee tribe, is primitive. They generally go about unarmed, and though far from an intellectual looking people, are known as a brave, determined, and hospitable race Their hospitality I experienced, being forced to partake of breakfast composed of more curious edibles, than I had yet partaken of—a meal which the kindness and good humor of the hosts renders a pleasing reminiscence. Their habits are temperate, they use no spirituous liquors, and their religious tenets forbid them the use of tobacco, an abstinence in passing through Sharga striking, in comparison with the towns of Persia and India, where almost every man is seen smoking his "hubble bubble" or "kaliyon." The Pearl Fishery, which extends along this coast from the Island of Bahrein is the chief occupation, and almost the sole wealth of the people, and by the influx of traders and fishermen, during the fishing season, Sharga generally has its population nearly doubled. A considerable oyster bank is opposite the town and I counted upwards of fifty boats, with divers anchored on it. Bahrein, however, is considered more profitable as a place to fish near, perhaps from this bank being smaller, and consequently fewer boats being employed, for the pearls obtained at each place are equally valuable. Vessels of size and burthen must anchor beyond this bank upwards of three miles from the shore in seven fathoms water, with bad holding ground and no protection from the violent *North Westers* which frequently blow on the Arab side.

That rocky coast, extending from Rasel Had to Muscat, already described, is continued to Ras el Khyma, a rocky head-land about twenty miles below Sharga, where it terminates by turning inland. From thence the whole of the Arab coast to the river Euphrates is low, sandy, and shelving, and in the vicinity of Sharga is studded with small towns surrounded by date trees, each governed by an independent Sheik. The country interior, is also sandy, and little or no cultivation is observable.

The inhabitants say their country is healthy: but many of them look sickly, and have marks of the actual cautery on the thorax and abdomen. In April, the climate was mild and temperate, it is however, in July, August, and September, the contrary; as then all along the Arabian side of the Gulf strong, hot, and parching winds blow, loaded with offensive vapors from the marshes, which abound near the numerous back waters by which the coast is intersected. Heavy fogs also prevail at this season; yet the British Agent, an intelligent Arab, assured me that the climate of Sharga was even then better and more healthy than that of Bushire: as it was, the cold season they dreaded most, because the sudden changes of temperature and the coldness of the nights produced fevers, which otherwise, he added, they would be free from. Their confidence in European medical men is apparently very great, for I was obliged to undergo the ceremony of feeling the pulse of every Arab in the place, and to prescribe for great numbers, but chiefly for the different Sheiks, who, although they generally looked to be free from complaint, before they were aware of the presence of doctor, yet invariably established some disease which I have no doubt they hit upon as a means of obtaining medicine against future ills.

Abbothubbee, an Arab town in the Persian Gulf, about ninety miles higher up than Sharga is built on a low sandy island, destitute of all vegetation save the Camels' thorn and a few dwarf Palms, called also Abbothubbee. The town is long and narrow, having in its centre a square Fort, built of coral rock, with a tower at each angle, whose court yard is open and appears as if designed to shelter cattle and other property in case of the descent of any hostile tribe more than as a place of fixed residence for the chief. There are altogether not above 800 huts in the place, and these are made entirely of the leaves of date trees strongly and neatly wattled. None of the inhabitants have stone houses, which the absence of all sort of stone on the island easily accounts for. The population is not apparently beyond three thousand, and yet not many years ago the chief of Abbothubbee used to march against the enemies of the tribe with as many able-bodied men. The tribe is different from that of Sharga, indulging in the use of tobbacco, they are free from most other vicious habits; but they do not appear to be so cleanly a people as the Arabs generally are, and are without pride of person. A brother of Califfa, the Chief, a gentleman, who evidently imagined himself "omnibus suis numeris absolutus" was the only one observed to have bestowed care on his person, and his hair, which was elaborately plaited without adding much to the beauty of his person, was an object evidently of his fondest care.

Abbothubbee possesses a good deal of shipping, among which are several buggalows of considerable size. Its trade consists in bringing rice and wood from the Malabar Coast and in the pearl fishery on the neighbouring banks, to which three or four hundred boats are annually sent. With the interior little or no communication exists. They have always been considered the most daring of the pirates of the Persian Gulph, and it is only three years since eight boats belonging to this town attempted to seize the Honorable Company's corvette "Elphinstone." Their reception although so ill managed that the whole escaped, was yet warm enough to convince them that such attempts in future had best be left untried. The natural position of this nest of pirates at present engaged in a war with the potentate of Bahrein protects them in a great measure from foreign aggression. Vessels of any size can only find anchorage about three miles from the town beyond a coral reef of great extent. Two passages well known to the natives permit their large boats to pass within the reef at high water ; and native pilots have offered for reward to conduct through these intricate passages the Honorable Company's Cruisers, in which case their anchorage would be in 3½ or 4 fathoms water and command the town ; but necessity never having occurred for thus venturing a ship, the offer has hitherto been declined.

The sand and island is peculiar, being entirely composed of small round calcareous particles resembling seed pearl, for which it has been frequently mistaken, destitute of silicious or quartzy matter, but mixed with fragments of shells. By digging into this sand water is obtained at a depth of four or five feet ; what is thus got, and none other is procurable, is of a brownish color, brackish and very bitter to the taste. There are no regular wells, and as soon as the loose sand begins to fill them up, they are deserted and new ones formed.

Camels of a very superior breed are numerous. Bullocks of a very small size, with a few goats are seen, but horses are not bred on the island nor are they procurable save from the interior. The superiority of the camel—Camelus Dromoderius—not the Bactrian or Asiatic camel, is well worthy of attention. The chief who observed our admiration fixed upon them gratified us by the exhibition of a camel race. Selecting several of the best without any other aid than that of placing the foot on the fore knuckle, the rider sprang upon the back behind the hump and they all set off at score, the animals being guided by a short crooked stick such as every Arab carries and a rope round the neck, not as in India through the cartilage of the nose. They all turned rapidly and easily, and their rate of going could not be less than sixteen miles an hour a pace I was told they can continue at during the whole hour.

# ACCOUNT OF THE VOYAGE OF THE EUPHRATES STEAMER UP THE EUPHRATES.

In a memoir on the river Euphrates,* I have briefly described the passage of the Steamer Euphrates through the Lumloome marshes up to Hit, from thence by the canal of Sugglavya to Bagdad, and the return of the steamer by the river Tigris to Bussorah. In that memoir, however, many interesting details have necessarily been omitted, which I trust in the following pages, written in the form of a journal, will prove acceptable to the readers of the *India Review*, without interfering with what has been already published.

The swell of the river Euprates is greatest early in the month of June, at which period the narrow and tortuous channel in the Lumloome marshes is passable by boats of considerable burthen, a circumstance, which induced the late trial of the passage of the Steamer "Euphrates," notwithstanding Colonel Chesney, in the same vessel had failed to accomplish this object on a former occasion. Thirty-five able seamen, with a corresponding complement of officers and natives as stoakers were transferred from the H. C. corvette "Clive" at Bussorah, on the 17th of May, 1838, on which day, the steamer weighed and standing up the Shat el Arab reached Kornah, a distance of forty-two and a half miles after five hours' steaming. There about midnight, the only accident, which happened during the voyage, occurred. One of the European seamen in the darkness of the night, slipt and fell over board, the strength of the current swept him rapidly away and the boat was lowered for him in vain.

Kornah one of the three Apamea's built by Seleucus in honor of his wife Apama is at the present day a mass of ruins, on a narrow point of land, round which the Tigris and Euphrates sweep their junction. Besides these, a few huts built beneath lofty date trees, containing about three hundred Arabs are all that remain to mark a city once of considerable consequence, and which oriental traditions have fixed on as the site of the Garden of Eden. From Kornah, the united streams flow till they pour themselves into the sea, at the top of the Persian Gulf are designated the Shat-el-Arab, or river of the Arabs,—a stream which offers no impediment to vessels of upwards of four hundred tons burthen being navigated from its bar to Kornah—a distance of one hundred and twenty two and a half miles.

In breadth the stream of the Shat-el-Arab averages from five hundred to seven hundred yards, varying in depth of water from four to nine fathoms; the deepest channel being invariably close to its steep alluvial banks, which are thickly clothed with forests of Date trees. Sometimes, however, they are low and swampy, covered with tall reeds, or flat and extended alluvial plain abounding in grass—pasturage for the flocks of the Nomad races living in the Lower Provinces of the Euphrates. Bussorah, as a town, alone occupies a prominent place—the other towns on both banks of the Shat-el-Arab depopulated by the plague are heaps of ruins, and although new villages are fast rising into some degree of importance, many years must elapse before the population increases to its former extent.

The course of the river Euphrates, at Kornah, is nearly due East and West, whilst that of the Tigris runs S. E. and by E.; the stream of both being about three hundred and fifty yards broad, with a current of one mile and a half an hour.

On the afternoon of the 18th of May the steamer passed four grab brigs and a biggara standing up the Euphrates with a fair wind. This, the fleet of the Pashalik of Bagdad, under admiral Turky Bel Moss, who had his flag flying at the main of the largest ship, was proceeding to Shoogh Shookh, the chief town of the Arabs of the Montefique tribe to co-operate with the land forces of the Pashalik in punishing the Montefique Arabs for depredations committed in the territories of Bagdad. The Turkish fleet had not been passed above an hour by the steamer before her further progress was checked by chains thrown across the river. These buoyed up by large bundels of dried reeds—date leaves and a single boat, anchored in the centre of the river opposed a most effectual barrier, not only to our progress, but to that of the fleet. Besides this obstruction, temporary fortifications, on which were mounted a few pieces of ordnance, were thrown up on either bank of the river, behind which many hundred of armed Arabs had taken up a position to protect their country from invasion.

Communicating in the first instance through an Arab Interpreter, and afterwards directly with the chief "Shaik Fariz," as to whether we would be permitted passage upwards, it was ascertained, that their feelings towards us were so favorable, that so soon as the wind,—(which at present was favorable) changed to prevent their enemy following the steamer, the chains would be slackened for our passage. On receiving this reply the Euphrates dropt down the river and anchored near the fleet, which had already come to. The number of guns each vessel carried averaged from eight to twelve, and their crews which were numerous consisted of a mixture of Turks, Arabs and Persians.

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* Memoir on the river Euphrates, &c. during the late Expedition of the H. C. armed steamer Euphrates, by James W. Winchester, M. D. Assistant Surgeon.—"*Proceedings of the Bombay Geographical Society for November.*"

During the night of the 19th the wind veered to the northward, and blew at day light strong enough to prevent ships the size of the admiral's tacking up the river ; the steamer, therefore, passed through the blockade of chains, which was lowered according to promise by the Arabs, who armed with matchlocks,swords and spears, crowded the banks to see u pass. Their red ensigns, with a broad green boarder were planted on both banks and on board several armed and fire boats, which latter they confidently anticipated would be of great advantage against the Turks, should they attempt to force a passage.

From Kornah, the right bank to this outpost was flat and inundated, without date trees, which formed a continuous forest along the left bank, protected from the inundation by a mud dike, having an occasional creek passing inwards, towards its termination divided into small channels to water the date trees, or allowed to swamp the country, which in this state is covered with tall reeds and rushes, among which are numerous Pelican—a sacred bird on the banks of the Euphrates. Scattered here and there beneath the trees a few villages are seen, near which numerous herds of the water Buffaloe graze. Proceeding some miles higher up the river, the banks were completely overflowed and save clusters of grassy islets, on which were a few huts, and clumps of Palm trees, the whole to the edge of the horizon was one vast sheet of water. In the midst of this extent of waters, the main channel of the river was easily kept. Its depth varied from two and half to three fathoms water, and its current did not exceed two miles an hour. Until the immediate proximity of Shoogh Shookh—upwards of twenty miles—this extensive inundation continued ; from thence the aspect of the banks changed, the date tree ceasing to predominate,—thick jungle of Tamarish and Salsola usurping its place.

Numerous villages during this day's progress—" the 20th,"—occurred, and both banks presented from the numerous herds of oxen, sheep, goats, and horses, a pleasing picture of pastoral life, the more so, as in the vicinity of the villages or rather encampments little or no cultivation existed. Last these, the Euphrates slowly and magnificently wound its way offering no obstructions to the steamer, the stream being both broad and deep. The average width of the river was three hundred yards with steep alluvial banks close to which the steamer navigated. The only incident of the day was in passing about noon, a place where Shaik Esau,the brother of the governor of Shoogh Shookh,was encamped with part of his troops, who received us with a novel salute. The whole assembled band of Arabs with their red and green banners waving danced and shouted along the bank success to the English—a well meant and kind salutation which they continued until the windings of the river withdrew us from their sight.

Next day at a place called Ayn Syud we passed, on the left bank, the encampment of the Pasha of Bagdad's army, a mottley group of Turks, Arabs, and Turkomans, three or four thousand strong, who crowded the bank to view the steamer, which was stopt that the chief Turk might inspect her, which he did with evident pleasure, complimenting the commander highly on the success he had already attained.The troops of the Pasha were apparently without much discipline and the cavalry ill mounted. Their destination was against our friends of yesterday and to invade in conjunction with Turky Bel Moss the territory of the Montefique.

From Ayn Syud the river became gradually narrower and narrower till we entered the Lumloome marshes. At first the river's tortuousness marked their commencement ; in them all was inundation, whilst the current in the main channel ran round the short and abrupt turnings, the stream takes with a velocity of not less than five miles an hour. Round these the Euphrates steamed well and only once experienced difficulty from shoal water in turning an abrupt point beyond which she grounded. Earlier than usual the vessel was brought to anchor, in the midst of a scene of wide and extended desolation few portions of the world exhibit, in order to rest the Europeans who were much fatigued —an almost unnecessary act for the numerous musquitoes denied sleep.

On the 22nd of May, the remainder of the Lumloome marshes were passed through by the steamer with comparative ease ; the boat was only once again in difficulty from shoal water in rounding a point : but not so as to require the getting out of warps, &c. When clear of the marshy ground and the banks began to get high (in the marsh they are often below the level of the river when at its height) and show some signs of cultivation, the turnings of the river became more abrupt, and the current rushed round them with a force of not less than six miles an hour. This, and the extreme narrowness of the river render the passages most intricate and difficult : Often the strong current took the steamer, and she refused to answer her helm, flying round with its force, unless checked by the anchor suddenly being cast loose so as to be driven upon the opposite bank. In this manner, two anchors were lost. The first had a chain cable of half an inch in diameter ; the second one three quarters of an inch. The second anchor was lost in the following manner : at the last and greatest difficulty contended with, as the steamer was rounding a sharp point, where the current ran with unusual violence, so as to agitate the whole breadth of the stream with an appearance of shallow water, while the depth was very considerable, her helm became useless; and from the vessel's length the power of the current acted so as at once to sweep the boat bodily round. The instant she was observed to yield to the stream, a large anchor was dropt, length of cable was unsparingly given in the hopes of ultimately checking her: but it being impossible to do so with sufficient celerity it broke, and the ship flew on the bank. She was speedily rid of the bank, and after one or two ineffectual attempts to round the point by the full power of steam at last happily succeeded, by being purposely sprung with the current's full force and that of the steam, (which though instantly stopped still acted) on the left bank round which the current swept; from its soft and muddy nature, no injury was sustained, and no farther impediment occurred to the steamer's passing upwards. The stream continued very tortuous till above the town of Lumloome, or Musahay, now a mass of ruins, where the river divides, one branch running up past Lumloome, on the left bank, and the other towards Hillah, on the right bank. After this division, the river becomes broad and in every sense of the word a navigable stream, with high and steep banks, clothed with thick and interminable jungle of tamarisk, intermixed with the wild black-berry, caper bush, and a vast variety of creepers, with occasionally the liquorice plant which here grows to more than the height of a man, among which old ruins, or the remains of some ancient canal, which formerly communicated between the two great rivers of Mesopotamia are seen. Above the Island of Esmay Aynee, the river increases to eight hundred yards in breadth, and its high alluvial banks have in them numerous holes, where king-fishers of a white color, beautifully marked with black, have their nests, while the turtle dove, the blue jay of India, the black and grey partridge, hawks and a numerous variety of small birds occupy the jungle.

Thus the passage of the Lumloome marshes, was accomplished, the greatest barrier to the navigation of the Euphrates, without the intervention of any difficulty, which for a single moment caused a hesitation or the shadow of a doubt as to the practicability of success in a steamer the size of the "Euphrates,"—one hundred and five feet long, and nineteen feet beam,—I am, therefore, induced to believe that with a vessel shorter and of more power, and consequently better adapted to the intricacies of the river at this part the passage of the Babylonian marshes would always be certain. There is besides the obtaining a steamer more capable of ascending this river in the Lumloome marshes the knowledge of all the obstacles gained by accurate survey before and after each rise, the confidence acquired by officers and men who have navigated boats more than once through them, and the knowledge of the passage being practicable, which in future regular intercourse by this river between Europe and our Indian possessions must tend to soften and ultimately to render the obstacles triumphed over this day a matter of future, easy achievment.

As the day advanced—"24th"—the approach towards Babylon and Hillah was indicated by groves of palm trees and the signs of human habitation. Nearer numerous orchards among the date trees rendered the banks, especially the right, beautiful in the extreme. They were thick with pomegranite, with its brilliant red flower,—mulberry trees loaded with dark purple fruit,—the broad leaved fig,—the apricot, orange and other trees, whilst the Poplar of the Euphrates assumed a prominent place growing close upon the river, whose breadth increased with every reach. The "Euphrates," anchored below a bridge of twenty-eight boats built of hides covered with a thick coating of bitumen: here the river was ascertained by measurement to be one hundred and eighty yards broad, with a current of two miles an hour. For the passage of the steamer the whole line of boats were cast adrift, but were speedily replaced by the inhabitants who crowded to see the steamer. Although the city of Hillah—in a manner similar to ancient Babylon—occupies both banks of the Euphrates, yet the right has the greatest number of inhabitants, who are principally Arabs and Persians governed under the Pashalik of Bagdad, by a Turkish governor, who has a small escort of regular Turkish troops.

The town is built of brick without architectural ornament. Massy ruins within the walls which are considerably decayed, mark Hilla to have been of greater importance than it now is; for the bazars which are mean in the extreme exhibit few manufactures either domestic or foreign: but are occupied almost entirely with shops containing the necessaries of life and cafés filled with listless and indolent occupants. The walls inclose a much larger space, than has ever been built upon, in order, as was the custom in all the ancient cities of the Euphrates and Tigris, to permit cultivation, so as to render, during a siege, the inhabitants in some measure independent of the surrounding country. At the present day numerous patches,—in which grow, wheat, barley, cucumbers, melons &c.,—are to be seen surrounded by date trees, beneath which, are encampments of the wandering Arab, who prefers in his forced visits to the fixed settlements of man to preserve his freedom by living beyond the immediate influence of the city. Hillah, itself, has no monuments of antiquity: but there are numerous Jews, who vend antiques collected from among the ruins of ancient Babylon, consisting of seal rings, cylinders &c. with devices. According to Herodotus, "every person has a seal ring, and a cane or walking stick upon the top of which is an apple, a rose, a lilly, an eagle, or some figure or other, for to have a stick without a devise is unlawful. "CXCV." These, Hereen informs us, were most frequently cut out on the sardine-stone, the onyx, the sardonyx, the emerald and sapphire. The labors of the learned, continues this author, have shewn the extreme difficulty there is of ascertaining the mere application of these terms. Mineralogists admit that the sapphire can be no other than the lapis lazuli; but the question is more difficult as regards the smaragadus or emerald, which seems frequently to have been confounded with a species of fluor spar. The name of the sardine stone seems to have been a generic one comprehending all the finer species of hornstones and agates of various colors, according to which they appear in part at least to have been classed; the red were denominated cornelians; the white from resembling the color of the nail onyxes; and those compounded of both sardonyxes: to the same class belonged the chalcedony, &c. amongst the numerous Babylonian and other antiques of this portion of the world which came under my observation, I am induced to believe that the sapphire can be no other than the lapis lazuli, —a far from rare and always beautiful antique. The emerald is seldom or ever found, carved into an antique, whilst numerous specimens of fluor spar, either without colour or of a pale topazy tint are common, generally cut as if they had been intended for a ring. Hornstone, agate, chalcedony and cornelian are the most common materiel of antique—cut almost uniformly on one surface into the emblems mentioned by Herodotus, or into the much prized aglinder on which astrological figures and signs are engraved. These antiquities are now seldom worn and are little cared for by the inhabitants. A ring with the individual's name and a short Arabic verse from the Koran the poorest individual wears, while the richer have their hands decorated with precious stones, chiefly the torquoise, to which they attribute an influence over their fortunes.

Another quotation from Herodotus will, though centuries have elapsed, still describe the costume now worn. "Their—the Babylonians—clothing was of this kind, they have two vests; one of linen, which falls to the feet, another over this which was made of wool, a white sash connects the whole. The fashion of their shoes is somewhat peculiar to themselves, though resembling those worn by the Thebans. They wore their hair long, covered with a turban, and are lavish in the use of perfumes."

In appearance both sexes retain much of that noble: but soft voluptuous beauty which rendered them famous not only in the days of Alexander, but in those of the Emperor Julian. Much of the profligacy Babylon was then noted for still exists in Hillah—whose very name is a proverb among the degraded and debauched cities of Asia Minor. Indeed few can read of the scenes of sensual voluptuousness, with which the feasts of ancient Babylon ended, or the unblushing manner both men and women degraded themselves in the temples and market places—nor the sordid manner, in which daughters and sisters were publicly sold, without being convinced of the deserved judgement these and other wickednesses have entailed on the land-soils the present possessors of the soil are not free from.

Numerous mounds of broken brick and alluvion, old canals, the remains of the hanging gardens and the tower of the BirsNimrod are the objects worth visiting on the spot where stood the mightiest city of the world. These have already by Porter, Rich, Mignan and others been fully described; to their labors, nothing can be added here, as the rapid manner the river was ascending precluded more than a passing visit. In a hurried visit to the Birs Nimrod, our party was detained in the bazars of Hillah who anxiously demanded medicines, these they were promised and we were allowed to pass on: however early next morning, scarcely had I stept on shore, than a party of Arabs by signs and seizing me by the shoulder led me along the bank of the river into one of the largest houses of Hillah, where I was introduced into a large divan crowded with richly dressed Arabs, presented with coffee and a chiboque. I was at a loss to divine the reason of my being brought hither, until the numerous wrists presented, assured me that my profession was the sole inducement. In the midst of the occupation of listening to numerous complaints in a language I but faintly understood, the lower door of the apartment was thrown open and a tall and well looking Arab entered: all rose to receive him, and I soon found that my being here was to administer to the ailments of the Shaik of the Montefique Arabs who, while in the field with his army, had from exposure been rendered paralytic. He seemed grateful both for the attention paid himself, and others of his family who were sick, and ill as he was insisted on seeing me to the steamer, which his lameness would not permit me to allow. A marked good feeling, I record with pleasure, not in the dwelling of the ruler of a large and powerful tribe, than in the populace of the bazars who invariably shewed a desire neither to be intrusive nor uncivil.

After receiving a supply of fuel, necessary for proceeding to Hit, the steamer after a delay of twenty four hours passed from Hillah up the Euphrates, which runs through the town in a direction S. and by W. and N. and by E. For many miles, vast mounds of alluvion, remains of the ancient city and its canals, skirted both banks: but neither this nor the following day—"26th"—did any unusual circumstance occur. The country was low, and extended jungle of tamarisk and salsola, the waters of inundation having along the right bank given place to a barren sandy plain.

In consequence of the wood producing the full power of steam, this day's "27" progress was slow and the steamer grounding on a shoal in the middle of the river caused a detention of nearly three hours. Persiabour and Neapolis were passed, along the left bank, the country is flat and sandy; whilst the right, the route of Julian and Jovian is alluvial and in many places cultivated. At dusk, the steamer was anchored below Felugia, opposite the site of an ancient fortress, of which now little remains but the heaps of alluvion on which it was built. It is called Aboo Ghrab. Early in the morning the "Euphrates" was placed along side the ruins of a brick fort, all that is left of Felugia. The Felugia of Xenophon, which according to Plutarch is five hundred stadia from Babylon, and which is one hundred and three and a half miles from Hillah. Higher up the river, the spot where Cyrus reviewed his army at midnight, and the ground where the ten thousand encamped the night previous to the battle of Cunaxa, and from whence, as they again returned to this spot, it may be said the retreat of the ten thousand commenced, were passed. The field of Cunaxa was fought below Felugia and is upon a level plain close to the Euphrates, above which the country is one continuous swamp, for miles. The opposite or right bank of the river, down which Cyrus all along marched, until he crossed to the left at Thapsacus or Dar is level and cultivated with a low range of hills running N. and S. about eleven miles from the river. These are of a uniform white color and composed of sandstone of the newest formation. Their sides are occasionally perpendicular: but more generally they run down in gradual rounded slopes towards the alluvion. Beyond these, the desert commences. Numerous tents of the Arabs of the Dalem tribe, surrounded by extensive cultivation and numerous flocks, occupy both banks of the river for many miles, after they cease to be swampy. The Arabs of one large encampment, as the steamer passed, collected along the bank, dancing, shouting and beating drums in order to shew their respect for us—a circumstance, which marked, that our advance up the river was not among a people less friendly and well intentioned, than those we had left behind. One old grave, grey bearded Arab with a naked sword, which he flourished to the rude Arabic verses he sang was the most prominent figure, and our interpreter Moolah Aly, another respectable old Arab, determining not to be undone in politeness or loose the opportunity of shewing off his powers, mounted the paddle box and flourishing his naked sword while he danced, and sang, gave to the whole scene, an amusing character, which we did not expect this part of the world to have afforded.

Several of the Arabs were observed in the course of the day swimming across the river, some along side their horses and others alone: their manner of floating themselves up against an under current, which prevails generally in the Euphrates, &c. at the same time preserving their clothes from being wet is by blowing up a sheep's skin, into which their dresses are first placed, which greatly assists them across the still rapid and broad current of the Euphrates. Until, towards sunset on the 28th when a lofty minaret on a rocky point was seen, both banks presented the appearance already described. The steamer navigated with ease close to either bank, with a depth of water averaging two fathoms and a current of not more than three miles an hour.

Getting under weigh at day light (29th) the steamer passed the minaret of Imashaya, which is in considerable decay. Here the river becomes narrowed, and more rapid in its current, with rocky banks, the first yet seen, and therefore, in every probability, the Pylœ of Xenophon. Soon after leaving this spot, the banks are again flat and alluvial, the left being the broadest, and most cultivated, whilst the right is rocky with merely a strip of alluvial soil, sometimes not a mile in breadth. Both are well cultivated, and as the banks are higher than the river when most swollen few canals are cut: but along the edge of the bank, rude means of drawing up the water in large leather buckets, for the purpose of irrigation are erected. These are not elevated filled with the water of the river by oxen, but by men, and if judging from the extent of some of the fields and the stacks of wheat in them, for now, is just after harvest time, with the people of this part of Arabia, human labor must be found cheaper and better than that of animal, or perhaps they prefer employing the surplus population, in a work easily accomplished, while the large cattle are left to graze which I have observed are far from numerous and of small size along the countries of the Euphrates. The smaller cattle are, however, more plentiful, and extensive herds of well fleeced sheep and goats are frequently seen along the Euphrates' banks from Shoogh Shookh to Hit, whose coats would form a valuable article of trafic. The wool is finer than any I have seen from the central and upper provinces of India* and would, in conjunction with goats and camel's hair form a great staple commodity for exportation. Piece goods and other articles of imported commerce from England and India would form the medium of exchange, and the wool, &c. collected could be always easily and rapidly conveyed down the river to Bussorah under the protection of a steamer.

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* Of the wool of these provinces I do not write unadvisedly, for during the period I held the appointment of Quarantine Surgeon on the northern frontier of Guzerat, daily opportunity was afforded me in the routine of duty, of examining the quantity and quality of the wools which came from the mart of Pallee and beyond it; also during the short time I was stationed on a similar duty on the frontier beyond the river Mhye, I observed the quality of the wool, which passed into our territories, and neither can be compared in fineness

No great quantity of wool is at present exported from the provinces of the Euphrates, for what the natives collect is merely that, which is shed from the sheep, an article of very inferior quality, sufficient only to relieve the country of a small portion of what it can so abundantly produce. Attention to this branch of commerce is well worth the notice and enterprise of individual and associated merchants. for their outlay would be repaid in a commodity more generally sought after, and better priced than almost any known article of trade. The fleeces of Asia Minor have from times immemorial been accounted the finest in the world. Herodotus described the two varieties of sheep still existing—which produced the best wool; and there can be no doubt that the Greeks, who esteemed the wool of the territory of Miletus the best, did so, because they confounded with the native fleeces of the Miletus, the wool of Arabia. I am aware those samples of wool, which have reached England from Turkish Arabia have been highly approved of. and it is only the want of communication with a country little known and hitherto considered almost inaccessible from the wildness of the tribes, which inhabit it, that has prevented the merchant seeking a commodity so highly conducive to comfort and to luxury from this part of Asia. It is a well known fact, that the farmer in England prefers feeding sheep for their carcases, rather than for their fleeces, and hence when towards the close of last century efforts were made to introduce the Merino breed from Spain, the farmer found the speculation unprofitable, from the uselessness of the flesh, and the wools of England have gradually deteriorated, as the excess of short woolled sheep in 1838 over the long woolled proves. In that year the number of sheep producing short wool was 14,850,000, whose produce was 120,000 packs of short wool while 4.150.000 long woolled sheep produced 264,000 packs of long wool. Facts which prove, that England considers it less profitable to graze long woolled sheep, though their produce of fleece is far beyond that of the short woolled, than import from foreign countries. I need hardly refer on this point to the evidence of Mr. Gott of Leeds in 1819 before a committee of the House of Lords, who stated that "he could not make an article that would be merchantable at all in the foreign market or even for the home market except of foreign wool." The history of the manufacture since then, has completely confirmed the accuracy of the statements made by Mr. Gott and the other witnesses. for the progress of the trade from that period down to the present time has been one of uninterrupted prosperity, and instead of the importation of foreign wools injuring the price of British, they have on the contrary. increased in value. Nor need I call the attention to the amount of woollen manufacture in England being calculated at 20,000,000 sterling nor hesitate to express a confidence that the Arab would willingly lend himself to aid in the traffic, thereby insuring mercantile speculations being carried on in that country with certainty by means of the Euphrates' noble stream. and we in time may confidently hope that English manufacture will drive from the field, German, Turkish and Russian goods which abound in the cities of Asia Minor. and great Britain be supplied with a highly valuable article of commerce, through a new and a safe channel, which her own soil cannot produce; likewise we may look forward to the ends of civilization being accomplished, while our commercial relations are being extended, for "commerce is a cure for the most destructive prejudices, and one branch of commerce leads to another, the small to the moderate, the moderate to the great; while he who has gratified his desire of gaining a little, raises himself to a situation, in which he is not less desirous of gaining a great deal." Montesguien.

At noon we stopt at a place called "Culutoolrumanah" to take in wood. In doing so, the steamer was detained upwards of two hours. The wood consisted of small branches of the tamarisk, not well adapted for the purposes of steaming, but its being collected on the bank and men ready to hand it into the steamer shewed that the depot is capable of the improvement future intercouse will give. The Arabs employed, were the wildest yet seen, many of them were nearly naked and a few wholly so. This and their uncouth gestures did not argue much in their favor, yet their obedience to their own authorities, and the manner in which work was accomplished, shewed, that though savage in appearance they were not intractable. Their sheik, one of four, who rules over the Dalem tribe, came on board, he was an old man, highly inquisitive as to our motives in sailing up the river. The portion of the tribe he rules over amounts to upwards of two hundred thousand people of all denominations; when asked the number of inhabitants of the whole tribe of Dalem, his answer was "How can I tell, is it not impossible to count the hairs of the head?" In the course of the afternoon we were again saluted by some Arabs, with music and dancing, and at sunset the barren country, which the emperor Julian left to enter the fertile plains of the Persian monarchy was approached—a country desolate and as incapable of improvement as any part of the desert of Arabia. The desert of Mesopotamia, which may properly be said to commence above Fellugia is thus described by Xenophon. "The country was a plain throughout, as even as a sea and full of wormwood, and if any other kind of shrubs, or reeds grew there, they had all an aromatic smell; but no treee could be seen. Bustards, ostriches, antelopes and wild asses appeared to be the only inhabitants of the desert and the fatigues of the march were alleviated by the amusements of the chase. It was from these sandy plains of Mesopotamia, that the apostate proceed to Persiapour to ravage and destroy in a manner most ruthless and barbarous the remains of the glory and, grandeur of the Assyrian and Persian monarchies, to the banks of the Tigris where he reduced the palaces of sopor to ashes, and made the Royal parks hunting ground for the soldiers." Ammianus minutely relates the whole of this war of destruction, and Gibbon says, "Julian on this occasion, shewed himsef ignorant or careless of the laws of civility which the prudence or refinement of polished ages have established between hostile princes. Yet these wanton ravages need not excite in our breasts any vehement emotions of pity or resentment. A simple statue finished by the hands of a Grecian artist is of more genuine value than all these rude and costly monuments of barbaric labor: and if we are more deeply affected by the ruins of a palace, than by the conflagration of a cottage our humanity must have formed a very erroneous estimate of the miseries of human life." This apology for the apostate carrying the praise of refinement almost beyond the subtilty of words, might be admitted, even though we have to deplore the hastening the decay of "rude and costly monuments of barbaric labor" to any other than the sophist who could condemn to destruction Christian Churches in Jerusalem, that, heathen temples might be built on their sites—or to him, who could extract from any fable any sense which was adapted to his favorite system of religion and philosophy, and who could from the lascivious form of a naked Venus torture any moral precept or physical truth and from the castration of Atys explain "the revolution of the sun between the tropics and the separation of the human soul from *vice* and *error*."

Advancing between high sandy cliffs of a red color, in which distinct bands and spots of a bluish, greenish, or white color on the 30th May, the steamer reached Hit distant five hundred and thirty nine miles from Bussorah. The river in the vicinity of Hit has numerous arched gate-ways built into the force of the current, in which are immense undershot wheels, moved round by the strength of the current, so as to raise in small clay troughs water up to the level of the top of the arches, from whence it is conveyed in courses to irrigate the soil along the elevated banks of the river. The size of these wheels exceeds twenty feet in diameter, and the noise, with which they move is heard at a distance of several miles. The jutting out of these arches, and the river being confined between high banks renders the current so strong that it was with some difficulty the "Euphrates" steamed against its force; indeed, with the bad wood, yesterday received, and a slight injury which occurred to one of the fire places, it was found impossible till coal was substituted for the wood to make progress against the stream. The remainder of this day and the following was passed in preparing for the steamer's ascent to Bales, from whence Colonel Chesney had originally started, in his descent down the river towards Bussorah, two years ago. This delay permitted me to make the following observations regarding Hit and the surrounding country.

Hit, the Is of the ancients on the right bank of the river Euphrates, is built on an elevated, and detached rock of limestone six hundred and thirty miles above the embouchure of the united streams of the Tigris and Euphrates and nearly fifty from the minaret of Imashaya or the Pylœ of Xenephon.

The town, surrounded by a stone wall and a deep ditch, with the sides of the rock on which it is erected often perpendicular, still assumes an appearance of considerable strength, indicating that it must have been a strong hold of great importance in former days. Now it is in considerable decay, with not more than six hundred houses, built of limestone, with flat roofs. It possesses no bazars and the streets are narrow. The population is Arab and does not exceed two thousand five hundred. The general caste of countenance is distinctly Jewish: but this is all that remains to mark the former conexion between Hit and Jerusalem. The Hit of Uriah, which paid tribute to Solomon, I imagine to have been on the same spot, the present city now occupies. No other place in the vicinity is so well calculated for a fortress, and with the exception of the ruins of an old temple about two miles in a direction S.W from the river, no remains of ancient buildings exist. These consist of large masses of stone rising out of the ground from eight to twelve feet with often a length of twenty feet and considerable thickness disposed of with some regularity. In their vicinity no other ruins are seen: beyond them, however, are the ruins of a small Arab town built on a rocky ridge, so far removed from the river and cultivation as never to have been a place of importance. A minaret upwards of eighty feet in height is the only perfect structure, from whose summit the whole surrounding country, which is barren and rocky is visible.

Beyond Hit an extensive plain, broken by occasional ridges of elevated ground, and solitary hills, not of great height, but in a geognostic point of view highly interesting. Between the commencement of these and the back of the town, is a broad open valley extending to the right and left for several miles, on which are numerous small running streams, having their origin either from springs in the earth of from the petroleum pits in the adjacent hills: these are uniformly saline, and with the exception of a few stunted rushes, deny all vegetation to the soil which is soft and sandy. This water immediately in the rear of the town is collected in square and irregular compartments to evaporate by the heat and the sun, in order that it may leave its saline impregnation behind, which is gathered and used by the natives as salt, notwithstanding it contains a large portion of nitre. These salt ponds cover several acres and petroleum is seen to issue from the earth, so as often to render impassable the pathways along them. The appearance of the salt crystalized is very beautiful, and the difference of specific gravity, indicating the quantity of saline impregnation, causes the water to appear as if divided by a thin plate of glass. The upper layer of water being clear and limpid, occasionally ruffled by the breeze, while the lower is viscid and of a light straw color ; agitated, both layers mix like oil and water, quickly resettling.

Along the bank the alluvion is not of great extent : but pebbles, silicious and quartzy brought down by the power of the torrents on the mountains higher up, are deposited beyond the boundary of the alluvial soil and these mixed with calcareous debris, carried from above by the action of the river and here left, mark that the river's forming power has been extended beyond the present alluvial range.

The structure of the hills and ridges near Hit, differ from those some distance beyond, which are composed of a tertiary limestone, distinctly stratified horizontally, with flat and extended summits. The plain in its immediate proximity is calcareous sand, interrupted by huge tabular masses of limestone rising above its level, and angular fragments of the same stone, (which also cover the hills) intermixed with porous calcareous Tuffa, whilst its lower parts are covered with saline efflorescence, and are entirely sandy.

The hills, close to the town, on the other side of the salt ponds, are those in which petroleum is found, for which Hit is famous ; they are of very peculiar formation and principally consist of ridges and solitary hills, composed of red colored sand-stone containing a large proportion of calcareous particles, generally of a loose structure, though in many places assuming a distinctly stratified appearance. The strata are very thin, varying from a light yellow ochre to a greenish grey color, running in a horizontal direction, but most commonly in a contorted one so as to follow the line or general direction in which the hill or ridge runs. Such strata are mostly observed near the summits, while the lower part of the ridges are merely accumulated masses of an highly argillaceous appearance, friable, considerably disintegrated on the surface and mixed most abundantly with mica and sulphate of lime. In parts, occasionally irregular rounded and angular masses are cemented together by a thin intermediate basis, so as to assume an anygdoloid appearance

But the most extraordinary appearance which this hill takes arises from its being intersected with repeated horizontal strata of gypsum from three to six feet in thickness, which often run, not in one, but in two or three detatched veins on the basis, I have described, without contortion, and in several instances capping the summits, so as to form a superincumbent mass. Gypsum is only found in these positions, or detached in blocks on the sides and summits of the hills in which it appears as above represented. In all it has the same character, being easily splintered, with translucent edges, and a pearly, white fibrous splendent looking mass. Often it has crystals of sulphurs imbedded on its ragged weather-worn surfaces and sometimes the gypsum is found in crystalised masses "sulphate of lime," or impregnated with petroleum causing it to assume a black appearance. No limestone, such as obtains in the hills already mentioned, occurs in those which have the gypseous strata, but their hollows abound with petroleum, which issues from their surfaces in considerable quantities.

On the top of one detached hill, about eighty feet above the level plain, a few scoriæ were observed, but no other appearance of volcano. Nothing like lava, or approach to igneous formation exists ; and I was unfortunate in not finding any fossil remains, although I anxiously directed my attention towards obtaining them.

Among these hills are the bitumen pits or rather the petroleum springs of Hit, famous for having been visited both by Alexander the Great and the emperor Trajan. The principal spring, the only one now existing, is in a funnel shaped hollow in one of the gypseous and marly hills. It is forty paces round, and is filled with a substance of a dark blackish brown color, in the centre of which bubbles up water, which floating off, runs down to the salt ponds, where, evaporating, its saline impregnation is left behind. The water sometimes rises in jets a foot and a half high from the centre of the pit, at intervals, while at other times it bursts out in considerable quantities, raising the petroleum into large blebs, which breaking the water flows out with a gurgling noise. Besides this spring of water from the centre, smaller quantities issue from different parts of the pit.

The temperature of the water as it rises was found to be 74° F. while the thermometer stood in the shade at 85°.

The centre of the pit is described as deep: but its edges permit the people, who collect the petroleum to stand in it, above their knees, so that they with considerable facility roll up the tenacious substance into masses, which when dried and hardened in the sun are chiefly used as a fuel for burning limestone. Close by is a lime kiln in operation, as well as several in the neighbourhood, in them a very small earthy residue is generally left, and the flame burns with a strong heat and light. The petroleum, notwithstanding the quantity daily withdrawn, always continues at the same level, and the opinion of the natives is, that the supply in this pit is inexhaustible.

As has been mentioned, petroleum or mineral oil issues from the earth, in small quantities from almost every hollow in these hills, and, in the surrounding plain, it also appears, but never in any great abundance. It feels very greasy, and is handled provided the fingers are wet, without adhering ; if, on the contrary, the hand be dry and force used, it sticks like pitch. As it first rises out of the earth it is of a brownish black color, with a greenish singe and semitransparent. It rapidly becomes opaque and hard, in which state it is easily broken with a shining resinous fracture. Its specific gravity is less than that of water and it rapidly inflames.

This is the Bitumen Liquidum of Pliny, different from the naphtha* and asphaltos of the Greeks, and it answers to the description of the petroleum or mineral oil found in Moldavia "where springs of it flow from a track, where there is an alternation of beds of sandstone, marl, gypsum and rock salt"—"Jameson." Its present uses among the natives independent of its being made a fuel to burn lime in, which is sent from Hit, in some quantities to Bagdad, are to cover boats, preserve wood from decay, as well as to render impervious the irrigating channels from the gateways to the patches of cultivation along the river. It is also exported in considerable quantities.

The plain of Hit is very scantily supplied with vegetable productions, those found are either of a saline or aromatic nature and the chief cultivation by irrigation is wheat, surrounded by a few abortive date trees, the only wood in the vicinity.

The country on the left bank of the river, which is elevated above the level of the stream from ten to twenty feet, is sometimes alluvial and sometimes rocky, and assumes beyond the line of cultivation, which varies, from a quarter to half a mile in breadth, the following physical aspect upwards of a mile in breadth and of undetermined length beyond the irrigated soil, mounds of pebbles of all sizes of different nature and from different regions—principally Taurian pebbles—lie mixed indiscriminately in alluvion, many yards in thickness. This breccia, a detrital formation resembling what Elie de Beaumont formerly designated "Terrain de transport ancien" is easily broken up, and possesses no firmness of texture to entitle it to be demonimated otherwise than irregular mounds of intermixed pebble and alluvion. The pebbles consist of quartzy, silicious and argillaceous matter, varying in color and shape. Among them are pieces of flint, similar to what is found in beds of chalk. Besides these mounds, the surface of the soil is sometimes broken by the water-courses of torrents, whose banks are formed of a loose calcareous sandstone, with numerous horizontal veins of selenite. This foliated gypsum is much worn by percolation and presents a honey comb appearance. The basis itself is not distinctly stratified, and generally above it, there exist marks indicating the thickness of the pebble and alluvial deposit to vary from four to twelve feet.

Following the course of the largest of these torrents, dry the greater part of the year, the breccial deposit along the top of the bank is lost, and thin layers, not worthy of the name of strata, of a very soft limestone cover the soil. These frequently broken up, cover the ground with loose irregular masses, which extend over almost the whole country, till advancing by gentle, but irregular slopes towards a range of hills, about two hundred feet above the level of the river, and two miles distant, the pieces of limestone increase in size and frequently form large elevated masses, resting on calcareous sandstone. The hills, themselves, are composed of crystalized limestone of a soft nature with a shining and irregular fracture. Their formation is tertiary. Fresh water limestone, stratified horizontally and rests on a basis of sandstone, also apparently of fluviatile or Lacustrine origin which is frequently shurst upwards so as to leave the upper part of the ridges in some place only of limestone. The tops of the highest hills display fossil shells of a small size imbedded in the calcareous mass, the only organic remains to be found. Several caves and hollows in the sides of the ridges occur: but none of them are of large size, nor do they present any thing interesting.

From the highest point, the whole country presents a sterile and desolate appearance, highly irregular in its surface and utterly devoid of vegetation. Even the bank of the river shews little vegetable life; a few abortive date trees, and stunted bushes of the "Poplus Euphratica" intermized with Capparis Spinosa and low thorny aromatic shrubs are all that obtain beyond the cultivation, which is entirely, wheat, barley, and the Sesamum Orientale.

Hit is on the line of communication from Bagdad to Beyrout, by which the mails are conveyed from India, after reaching Bussorah, to England. The distance from Bagdad to Hit, by dromedary dawk is accomplished in one day; that from Hit to Damascus in nine, and from Damascus to Beyrout in one day more. From Bussorah the mails are forwarded on horse back and by cossids via Shoogh Shookh to Bagdad in about eight days, and the time occupied in steaming from Bombay to Bussorah is on an average eleven days, including twenty four hours delay at Muscat to take in coal, and a few hours off the Island of Kargh for a pilot, making the total number of days between Bombay and Beyrout where the Mediterranean steam vessels regularly call once a month for packets thirty days or one month. The line of route by the Euphrates during the period of the South West monsoon is of the greatest importance to India. Dispatches, from the arrangements lately entered into, must always be conveyed in safety from Shoogh Shookh to Bagdad the only part of the whole line unsafe, and that from the Abboo Mahomed Arabs, who—the most lawless of the tribes of the provinces of the Euphrates—conceiving from the size of the letter boxes last year, that they contained money or other valuables robbed them. Now, however, that they are undeceived and having no enmity towards the English nation, it is to be expected they will allow them in future to pass through their territory. Part of one of the three packets which were missing last year was lost by the following mishap: in crossing the desert from Hit to Damascus, one of the dromedaries from the heat of the sun went mad and rushed wildly into the midst of the desert, where from the drifting sands all traces of his footsteps were effaced. This an accident not to be calculated upon, as well as the two other packets, which were rifled, being made up in boxes, (which attracted the Arabs' attention) instead of loose Tartar bags, does not detract from the certainty of this route as a means of transmitting Indian mails to England. Plunder alone actuates the Arab to steal and he is sufficiently well aware of the little value of our letters to permit them to pass in future unmolested. With us, he has no blood feud, our messengers are in consequence protected from being murdered; for unless to revenge the death of one of the tribe an Arab seldom commits murder, in future I would therefore anticipate, that beyond unforseen accidents, no causes are likely to occur to interrupt the regular transmission of the mails.

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* There are springs of naphtha, about ten miles below Hit, at a place called Nefata; higher up the river Bitumen is found in veins, in considerable quantities.

Early on the 1st of June the steamer left Hit, steaming against a very rapid and strong current, increased by the numerous irrigating archways projecting from both banks, for four miles, when two gateways narrowed the stream and increased the current so much, that after several ineffectual attempts to proceed onwards it was found necessary to place her close to the bank below for the purpose of lightening the vessel of her coals and stores. Here the breadth of the river is about two hundred yards, and the gateways project from both sides into the stream directly opposite each other, about forty feet from the one bank and sixty feet from the other The nature and construction of these aqueducts are described by Colonel Chesney in his memoir on the river Euphrates, published in the proceedings of the committee of the house of commons on steam navigation between England and India, as follows. " But, what most concerns the subject of this memoir on the Euphrates is the existence of a parapet wall, or stone rampart in the river just above the several aqueducts; in general there is one of the former attached to each of the latter, and almost invariably between two miles, on the opposite banks a wall crosses the stream from side to side, with the exception of a passage left in the centre for boats to pass up and down. The object of these subaqueous walls—mistaken by Alexander the Great for means of defence against his irresistable legions—would appear to be entirely with a view to raise water, sufficiently at low seasons to give it impetus, as well as a more abundant supply to the wheels, and their effect at those times is to create a fall in every part of the width, save the opening left for commerce, through which the water rushes with a moderately irregular surface. These dams, were probably from four to eight feet high, but they are now frequently a bank of stones, disturbing the evenness of the current, but always affording a sufficient passage for large boats at low seasons, and ceasing to be very perceptible except by the broken surface after the water is swollen," which is the present condition of the river. On the 2nd, the "Euphrates" was lightened nearly seven inches by having the coal, wood &c. on board of her landed: but even with this advantage it was found impossible to steam—though the engines were in the highest possible order—over the barrier arising from the force of the contracted current. Each trial, the vessel advanced quickly till she came to the point, where the current was forced into an elevated line, over the stone wall jutting out from each aqueduct, here she uniformly refused to obey the helm and was thrown off by the water's force towards either bank. The other archways higher up being known to be equally difficult of passage, if not more so, the steamer was again filled with the materials landed and in the course of the afternoon returned to Hit. These aqueducts were never looked upon as a barrier to this river's navigation, nor do I know if they yet are so, for at the period the attempt was made to pass by them, the stream was considerably swollen by a fresh, indicated by a diminished temperature of the water, and a rise beyond its usual confines. The force of the current daily diminishes as the river falls, so that in time these arches would in reality have been little or no obstruction. But independent of waiting for this fall warps might have been used to force the steamer past (native boats thus daily ascended) were it desirable to navigate above Hit. On the following morning the steamer proceeded down the river towards Hillah, navigating close to either bank at the speed of not less than fourteen miles an hour, till she anchored near the canal of Sugglavya five miles in a straight direction above Felugia, which leads to the River Tigris below Bagdad. The entrance of the canal is narrow and its course tortuous, while the current is not less than four miles an hour. The stern of the steamer was first entered into the canal, and aided by native trackers she slowly passed its numerous and abrupt windings frequently grounding on the steep bank from which, by the aid of poles and the tracker's ropes the vessel was uniformly got off without damage, though at the expense of considerable delay. During the first day's progress the force of the stream was not less than four miles an hour. After the first eight miles the numerous and abrupt turnings diminished and with precaution the steamer was enabled to go on ahead, yet she still struck the banks frequently and much labor was always required to place her in the centre of the stream. The entrance of the canal is low and flat, covered with Liquorice plant growing to the height of ten feet, with a root four and five inches in diameter which excludes, save a few tamarisk bushes, and long grasses, every other vegetation. The banks of the Sugglavya are steep and not elevated above the level flat of the surrounding plain; nay, they are frequently lower, a fact, which proves, along with the general appearance throughout, that this is in a great measure a natural and not an artificial canal. In the plain, the remains of several old canals are seen, whose banks are all elevated often forty and fifty feet, in height, with a gravelly appearance. Had the Sugglavya been the consequence of art, surely some part of its course would still indicate such. On the contrary, where the Li- quorice and Tamarisk cease, the surrounding flat of grass is equal and unraised in any one spot. A plain often unbounded, on which numerous herds feed, in the vicinity of the black horse cloth tents of the Nomad races which inhabit them. These people looked on the Steamer with astonishment, and on one occasion a party came down to the bank beating drums, with a sword dancer in advance to invite us to a marriage feast, which they did in rude verses. They were mostly well clothed: but the trackers possessed little to cover their bodies with but a single piece of wollen cloth sometimes worn as a cloak, sometimes simply wraped round the waist and, when in the water, formed into a sort of ball and fixed on the head. Generally they are Herculean figures, though not tall, and do not appear, notwith- standing the marshy state of the surrounding country, unhealthy. The second day's progress was not less tedious than the first, the vessel grounding twice on the mud banks, from which hours of unremitted labor were required to heave her off: indeed grounding towards sunset of the second day, the whole of the third was occupied in again getting the steamer afloat. On the fourth day after crossing a large lake connecting the canal of Sugglavya with that of Mosade, the "Euphrates" entered the Tigris five miles below the city of Bagdad. The length of the canal of Sugglavya is about seventy miles; in its first two thirds it is very narrow and tortuous, but in its last it is often fifty yards wide, with banks flanked by high reeds.

The steamer remained at Bagdad a few days, and on the 24th of June, again got under weigh to return to Bussorah, from a place called Govara, five miles in a straight direction below Bagdad. Passing the remains of Selucia, opposite to which on the left bank is Ctesiphon; the only evidence to mark the site of the Greek colony is a few alluvial mounds, irregularly disposed close upon the bank of the Tigris, while Ctesiphon has the Tank Kessarah, and an extensive triangular wall still in tolerable preservation. Below Govara, the gardens of Bagdad cease, and the country is flat and occasionally cultivated by irrigating wells, at which bullocks are employed. The river itself is wider and nobler than the Euphrates opposite Babylon, while an occasional island occurs on which the water buffaloe and other herds are; extensive mounds are observed in the distance on the plain rising sometimes to the height of hills: but generally the whole is flat and covered with the soda plant. The rate of the current is about three miles, and the steamer navigated close to the bank, which bore marks of the river having fallen about six feet. Below Ctesiphon the banks of the Tigris are less cultivated and exhibit fewer signs of being inhabitated than those of the Euphrates. The everlasting tamarisk clothes both with a thick jungle rendered impassable by numerous creeping plants, the caperbush and lion grass. Never does the tamarisk assume the appearance of a tree, and its small branches alone form the fuel of Bagdad; among these jungles the lion abounds.

Early on the morning of the 25th part of the range of the Kuzistan mountains was visible, and about six o'clock the steamer was brought up along side the left bank near an encampment of Montefique Arabs who offered us sheep &c. for sale. Their tents are on an extensive grass plain, surrounded by large flocks of beautifully fleeced sheep, horses, bullocks and innumerable asses. The plain bears marks of having been lately inundated as most parts of the banks of the Tigris hereabouts do, which as the inhabitants are much more Nomad on this than the river Euphrates may account for the hitherto scanty population. Cooteal-Hamara, a small village of about thirty reed huts on the left bank, was passed, and about two hours before sunset the Kuzistan mountains were neared, stretching parallel to the river on its left bank, their general aspect is similar to those in the Persian Gulph, with which they are connected. Their nearest approach to the Tigris appears from their base to be about twenty miles. The right bank is flat and extended, with numerous Arab encampments surrounded by small patches of cultivation—wheat and barley—with the exception of one large clump of poplar trees, among which is a tomb of an Arab peer or saint. The name of this spot is "Mugizil" place of washing, to which bodies of Arabs are occasionally brought to be washed previous to interment. Anchoring during the night the vessel got under weigh at day-light passing in the early part of the day a place called Ali Shergi, where, among a cluster of poplars is an Arab encampment; the whole of the country is flat and most uninteresting. Colonel Campbell in his journal published 1755 says,

The river itself is grand: but the country itself furnishes scarcely an object for reflection, I do not remember, he adds, to have ever passed through such a vast extent of country, so uniformly dull and uninteresting, or to have spent eight or ten days, with so little to give birth to a new idea after a lapse of more than half a century, it has still the same as-

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# MEMORANDUM

ON

# The Province of Assam.

CALCUTTA PUBLICK LIBRARY.

BY

G. R. BARRY.

CALCUTTA:
PRINTED BY C. B. LEWIS, BAPTIST MISSION PRESS.
1858.

# Introduction.

THIS monograph treats of the topography, geology, mineral wealth and soils of Nicaragua; it describes its climate, and presents the details of its flora and fauna with reference to their economic value; it displays the distribution of Nicaraguan population according to race, wealth, communities and social conditions; it examines the agricultural development of the State including its live stock and forests; and, finally, it recounts the most important features of its commerce, industry, finance, and of its economic and political conditions.

It is made up of observations and studies pursued in 1897 and 1898, during seven and a half months of economic and scientific explorations in Central America, and of facts garnered with care from authoritative manuscripts, books and official documents and publications. Respect has been shown to the work of men of originality in research and thought, and care has been taken to adhere closely to the original text when either quoting or translating.

X.A.37

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# MEMORANDUM

# On the Province of Assam.

THE Province of Assam, unquestionably one of the richest and most fertile in Her Majesty's dominions in the East, is as undeniably one of the most neglected and uncared for of all the British possessions in India.

With a soil suitable to the growth of every article of commerce produced in Bengal and the North-Western Provinces, it is especially favorable to that of Tea (which already rivals in quality the best from China) Cotton, and Rhea or the Grass Cloth plant of China; whilst its rivers and mountains abound with the most valuable mineral productions. Coal, Lime, and Iron ore are found plentifully in all directions; and Gold, which is worked by the people on a small scale in the beds of rivers in Upper Assam, is believed also to exist generally in considerable quantities. The Province possesses, throughout its whole length (upwards of 400 miles), on both Banks of the Berhampooter, Forests filled with timber of the most useful and most requir-

Yet, with so much natural wealth, with its unequalled soil, its varieties of temperature, its mines of coal, lime, iron ore, and gold, Assam, for all the good that the Government, or even the people of the country derive from it, might be a desert; for there it lies neglected and unheeded.

No one troubles himself about the wants of the country; no one has ever suggested aught by which its resources might be, not fully, but even partially and gradually developed.

We are told by the Officials, that "The great want of the province is a population, a large population; that as long as Assam remains a Jungle, not much can be expected." But why has it a small population? and why should not the population there, as elsewhere, increase?

The fact is, in the first place, that Assam has by no means such a small population as is thus misrepresented.

After the most careful observations and enquiries made by myself, in every district of the province, through all of which I have travelled, penetrating to considerable distances inland to the hills, I found throughout, especially in the districts of Jorehaut, Nowgong, and Durrung, *a very large population,* while in Luckimpore, where the computation is the lowest, it is by no means so small as I was led to believe, and as it is generally considered: but I found that the people, instead of being a hardy industrious race, working the soil to the same extent as is done by the inhabitants of Bengal and other parts of India, were lazy and indolent, cultivating just sufficient to avert starvation; and deeming it, for the most part, a reproach to labour, or to handle the hoe at all.

That the population at present is sufficient to bring under culture three times the quantity of land now cultivated, is undeniable, and can be readily substantiated; and this, of course, would not only reduce the "large tracts of jungle," but materially enhance the poor revenue at present derived from a neglected and consequently unproductive waste.

Why should not the people of Assam cultivate as largely and work as actively as those of other parts of India? Their wretched appearance, the decrepid, sleepy, *young-old* men seen every where, shew, unmistakeably, to what a melancholy state of degradation the unlimited use of Opium has the power of reducing man's nature: here, young and old men, women, children, *all*, are under the influence of the poison; and to such an extent as could prevail only under a sanction to the unchecked and unlimited growth of the parent Poppy.

The real Assamese cultivates *Opium* and *Rice* (equally necessary to his existence, as now constituted) sufficient for the requirements of his own household; and feels no inducement to labour for or amass any thing beyond.

The taxes, which in Bengal are thought to press heavily on the ryot, in Assam are unknown. For land, assessed in Bengal at one rupee and eight annas a "beegah," or six rupees per Assam "poorah," the Assamese pays, on an average, two annas a beegah, or eight annas a poorah; whilst he is permitted to cultivate waste lands for three years, *free;* a practice which, in itself, has a direct tendency to keep the country what it is: for, at the end of the third year when the tax-gatherer appears, the occupant shifts his location to another waste spot, and that previously cultivated is allowed to revert to jungle: hence, both rice and opium—his almost only wants—are supplied rent-free; not for one year, but *always*, so long as there is space for evasion.

There are no taxes imposed on the Fisheries in Upper Assam; none on the breeding of Silkworms in the Soomoonee forests; and the tax on the land is, as already observed, nominal: in short, the Assamese is allowed to do just as he pleases, useless as a member of the community in the midst of which he vegetates; and unprofitable to the Government which protects him, and which fosters the vices which render him what he is—a disgrace to them and to himself. All this might be remedied by the application of those means, so palpable, that it seems an impertinence to do more than allude to them.

Till these means shall be applied, the people must continue what they now are, degraded to a level little above the brute creation. When the Government shall step in and exert itself to rouse them from this depth of degeneracy, the Province will be changed from its present melancholy aspect to the fertile rich and smiling valley, one of the very first and fairest of the gardens of India. To effect this change, may not be the work of a day, but much may be done in a very short space of time; and there is nothing to prevent the rising generation of Assam from attaining to a healthy robust manhood; willing and able to work; and, while paying a fair proportion of revenue to the State, to enjoy for themselves a competent and ample independence.

To effect so much good, two immediate changes are indispensible; and involving, as these do, no loss, but, on the contrary, the certainty of a large increase to the public finances, with added happiness to the people, they cannot be considered inexpedient, in either a financial or social point of view.

These changes are—

1st.—A stringent prohibition against the cultivation of opium; and (paradoxical though it may appear,)

2ndly.—A gradual but considerable increase in the land and other taxes.

The prohibition of the growth of opium would be only putting Assam on the same footing as the rest of India; and would not prevent the people from the use of the drug; they could not indeed, for a time, exist without it; but, if they had to purchase it from the Government, while a considerable revenue would be derived from the sale of it, they would no longer give such an expensive article to their children; and would at the same time have to grow more rice other alimentary food, and, as a consequence, clear more jungle, and cultivate more largely than they do at present, to enable them to purchase what they themselves would require: and they could, as above stated, easily extend the cultivation to at least thrice the extent, to which it is now limited by the want of any stimulus to exertion.

There is a ready market all over the Province for every maund of rice, mustard-seed, or other article of produce which they might raise and desire to sell; the only complaint among the Kyans and other merchants, being the small quantity of produce brought for purchase.

The raising of the land and other taxes, gradually, within the course of two or three years, to at least double the rates now paid,—or, in other words, to tax the people, not heavily, but somewhat more in approach to the rates ruling in other parts of India, would have the effect of stimulating them to industry, by the necessity of increased activity and labour to meet the demand: instead of sleeping and idling all day after the two or three small patches are planted out, work would be demanded conducive to the health both of body and mind.

These two principal reforms alone, practically carried out, the state of the country would improve rapidly. There are necessarily other improvements to be looked to; but, were these once effected, less would be heard of the want of hands for labour; a useless population would find themselves forced to exert themselves; and a brighter prospect open upon a region, in all things inviting the blessing asked for it. When the present generation of children grew up, the vice of opium-eating, now all but universal, would not exist beyond its prevalence in other parts of India; and with it, would disappear its effects: the new generation would be stronger, more hardy and longer lived; the population would become as considerable as it is elsewhere; and while this was going on, the encouragement of emigration, intercourse by steam, and the introduction of European settlers, would aid materially and rapidly, in converting the Province to what it might so easily be raised, one of the richest in India.

As to the people objecting to the prohibition of opium, they would no doubt dislike the change as they would any other;

# REPORT

OF

# A JOURNEY FROM BUSHIRE TO KAZEROON

## AND BACK

BY

## SURGEON G. WATERS

(WHO WAS ACCOMPANIED BY CAPT. THE HON'BLE G. NAPIER.)

No. 923-183, dated Bushire, 19th August 1874.

From—H. B. M.'s Poltl. Resident in the Persian Gulf,
To—Secretary to the Government of India, Foreign Dept.

I have the honor to forward herewith, for submission to Government, a copy of an account drawn up by Surgeon G. Waters of a journey to Kazeroon, in company with Captain the Hon'ble G. Napier, containing some interesting remarks on the country passed through, and particularly its mineral resources.

2. Should Government be pleased to order this paper to be printed, I should be obliged for a few spare copies.

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### *Report of a journey from Bushire to Kazeroon and back.*

Two years and a half having elapsed since my assuming charge of the duties of Residency Surgeon, Bushire, having never seen during that time anything of Persia beyond the Bushire Peninsula, and having always entertained a strong desire to see some thing of the interior of the country, I requested the Resident's permission to avail myself of the invitation of Captain the Hon'ble George Napier, who arrived here on the 24th April on his way to join our mission at Teheran, to accompany him as far as Shapoor, where stand the ruins of the once magnificent city bearing that name. Colonel Ross at once accorded his consent, and we started from Bushire on the 28th of the same month at 4 P.M. and reached the first caravanserai on the road to Shiraz, *viz.*, Ahmedee, distant about 22 miles from our starting point, in four hours.

Our road lay for the first five miles through the Bushire Peninsula, following a track parallel to, and about five hundred yards from, the creek which, when the tides are high, almost separates Bushire from the peninsula and the peninsula from the main land.

The crops of wheat and barley to our right were somewhat stunted and sparse, but what there were, were pretty generally ready to be reaped.

The isthmus through which our road next struck consisted of a level parched up barren desert (almost impassable in winter during rainy weather), three or four miles in breadth and ten in length. Across this neck of land the Indo-European Telegraph lines follow pretty closely the route that is usually taken by travellers and caravans. In traversing this dried up puddle we saw no signs of organic life save two antelopes that on sight of us bounded off in the direction of the creek. After crossing this plain, called Masheela (marsh), which in winter well deserves its name, we arrived at a village called Chaguddak formerly resorted to as a summer retreat by the Resident and his staff. By this time it was getting pretty dark, so that we had only a faint idea of the size of the village. It could not, I imagine, contain more than forty families, if so many; our path now became less even, and took suddenly an almost due north direction, and an hour's gentle trot brought us to Ahmedee. We put up in one of those large pigeon holes which consist of arches built here and there as an upper story to the caravanserai, and which, when required for a lady-traveller, are set apart by common consent for their use. Each of these upper story rooms measures about 12 feet by 18 and by 10. This is a very commodious, and it is considered very comfortable halting place as things go in Persia. I had not before slept in a place of the sort, but in my opinion none need grumble at spending a night at such a place as Ahmedee. Indeed it struck me afterwards as the best caravanserai between Bushire and Kazeroon. It is quadrangular in shape, the outer wall being entirely blind with a view to greater safety, and could at a stretch accommodate upwards of a thousand people. The gateway is large and furnished with doors of very solid and powerful construction. The enclosed area is for the larger vehicles of conveyance and for the accommodation of horses and other beasts of burden. In winter the stable accommodation is availed of, which can house all the animals that belong to single caravans. Here about 9 P.M. the temperature fell so rapidly that we soon began to feel positively cold, so much so that an hour later, when walking on the roof of the caravanserai, not feeling inclined to go to bed soon, I was obliged to walk about with a blanket over my shoulders.

Next morning we got up before 5 o'clock and started almost immediately. The minimum temperature reached during the previous 24 hours was, we found, as low as 60°F., showing a striking difference from Bushire where the preceding night the minimum was 74°, though the distance between the two places is only about 12 miles, as the crow flies, and the one not much over fifty feet above the level of the other. These differences, however, need not be wondered at, for Bushire being almost an island, and that a very small one, has a temperature which does not vary greatly from that of the sea which evolves heat less rapidly than the land, and absorbs it more slowly; whereas Ahmedee is not only removed from hydrothermal influences but situated in a place the soil of which is favourable to radiation. For the same reason the maximum temperature of places situated like Ahmedee will of course be correspondingly higher than the maximum temperature of places situated like Bushire.

From Ahmedee our road lay due north, unbroken, and pretty straight. The crops of wheat and barley on either side were uniformly ripe and plentiful. About four miles to the north of Ahmedee we passed a little village to our right called Baanain, between which and the road the ground was interspersed with low brushwood of an undetermined species, and sparsely covered with dried up grass with blue and pink wild flowers here and there; while on either side an occasional date grove presented itself, relieving the otherwise monotonous flat sameness of the country. The largest date grove we saw was near the village of Khush-Ab (sweet water), where, taking advantage of the circumstance to which the place owes its name, we halted for a few minutes to quench our own and our animals' thirst. Khush-Ab loosely estimated may contain a score or two of families. The road now changed from a northerly to an almost due easterly direction and descended at a gradient of about 1·50 to a date forest, through which our path lay to Borazjoon (pronounced Borazgoon by the natives of the place), situated immediately beyond, and where we arrived at 10 A.M.; distance travelled that morning being six fursakhs = 18 English statute miles, at a rate of three and a half miles an hour. Between Ahmedee and Borazjoon reaping was generally pretty far advanced.

The general aspect of the ground here is level and unbroken, so much so that I often imagined the slope was precisely in the opposite direction to that which on closer inspection turned out to be the real course of the dried up tunnels and rivulets which indicated it to be towards the north and northwest, in fact towards the basin of the Dalakee River. The surface is numerously interspersed with these streamlet channels, of which one only, situated a little to the south-west of Ahmedee, contained a little, apparently stagnant, brackish water, and which in winter, when swollen, is, I should say, the source of inconvenience to travellers as it crosses the road at right angles. To the right, looking northward from Ahmedee, a range of mountains stretch almost parallel to the sea, from which it is distant about 30 miles. Of this range the summit outline is not very uneven, exhibiting no sharp conicities as in Scotland and Wales, but curved at apparently easy gradients, giving the mountain chain the appearance of what it is in effect, *viz.*, a gigantic barrier of natural formation, which, though not picturesque, would yet offer the most serious impediments to the hostile invasion of Southern Persia. The height from the greatest elevation to the base of the range, as observed with a small pocket sextant, from the road between Borazjoon and Ahmedee, at a distance of 15 miles, subtended an angle of three degrees, so that the relative height of the range at this spot must be at least six thousand feet. Owing to the remarkable rareness of the atmosphere these mountains, seen from the same spot through a small binocular glass, seemed not more than a mile distant, and were observed to be clothed with a somewhat scanty verdure.

The ground lying between the road and the mountains is considerably broken, the rough unevenness being most marked at and near the base of the range, while to the left, towards the creek of Bushire, slight inequalities of surface are the only departure from the painfully arid level monotony so characteristic of the whole tract of land immediately contiguous to the waters of Persia and Oman.

At Borazjoon we rested during the remainder of the day, having an apartment of the Persian Telegraph building kindly placed at our disposal by Mr. Arshack Malcolm, the Telegraph clerk stationed there. At noon, however, we found it so hot in the small room that we were obliged to repair to a tent Captain Napier had ordered to be pitched, and under this, so to speak, gigantic umbrella (the sides of the tent not being put up so as to allow a free play of air) we passed the heat of the day comfortably. Here the maximum temperature in the shade was 85°, and the temperature of evaporation 64° at 3 P.M.

Captain Napier's Moonshee in his verbal report of the road between this place and Ahmedee stated that that morning when it was yet dark, he and some Armenians, who were travelling with our caravan, were accosted by four men, whose bearing favoured the suspicion that they were robbers in the act of waylaying travellers, and the Moonshee was further of opinion that the apparent strength of his party deterred the supposed thieves from offering any annoyance to himself and his companions. He informed us also that his Armenian companions assailed the suspected men with a torrent of abuse, who, however, said nothing in reply.

Notwithstanding the worthy Moonshee's convictions, and with all due deference to his high intelligence and usually good judgment, it was my humble opinion that a hostile attack on such a number of men, as Captain Napier's party and the Armenians consisted of, in such open ground, was strongly improbable, especially as the ground we had so soon afterwards to travel offered most marked facilities for the successful conduct of a marauding enterprize. It is, however, highly probable that the objects of the Moonshee's suspicion were spies delegated to ascertain the proximate value of each caravan and to select for eventual appropriation such articles as would seem to repay the trouble of an attack.

In the evening we strolled towards the mountains, walking pretty fast for an hour and a half, and then returned. The ground rose as we approached the range 300 feet above Borazjoon, as shown by the aneroid barometer, but this difference in elevation was by no means apparent to the naked eye. This walk was a most uncomfortable one, from the annoyances we received from the pricking of spear grass in the feet and ankles, and the biting of midges, of which there were myriads, assailing us on the face, neck, hands, and wrists, causing us to keep continually wiping and warding them off. Brushwood bushes were numerous and the ground strewed with small stones, which from their generally rounded shape, together with the physical configuration of the district, indicated that at some comparatively recent period of antiquity the whole of the margin of country lying between the Persian Gulf and the mountain range which supports Southern Persia had been successively bottom and beach, of what at one time was only a portion of the former. Further northwards towards Dalakee the mountains as they rise abruptly from the low land are marked with horizontal parallel lines which would appear to have been the water mark of by-gone centuries. Numbers of doves (in Persian Koomri) were to be seen all along our path, and the few one of our guides brought to earth were remarkably plump owing to their being able to feed at that season on ripe grain. Near Borazjoon we came upon a hare asleep, which suddenly awoke on our close approach and bounded off. On enquiry we were informed that hares were by no means numerous in that quarter. Here also we came upon what at first seemed a well of enormous depth, but which turned out to be one of the many shafts of a subterranean aqueduct, of which there are a great number in Persia. Indeed the inhabitants of the majority of the principal towns in the country generally derive their potable water by means of these underground channels from springs discovered either in the mountains or elevated table lands. The Persians are exceedingly expert in the construction of these aqueducts (Kanats in local phrase), the water being often conducted almost at a dead level for great distances.

Borazjoon contains at present no very substantial houses, consisting merely of an aggregation of huts with a population of fifteen hundred, though at one time I was informed it contained as many as twenty thousand. What promises to be a commodious and superior caravanserai is here in course of erection, the cost of which is borne by a public functionary resident generally in Shiraz, the Musheer-ool-moolk.

The neighbouring mountains though they appear to rise abruptly do not it would seem in reality; for I was informed that near the summit they contain numerous traces of ancient Guebr occupation and now afford pleasant summer retreats to the inhabitants of the adjacent country when driven thither by the oppressive and debilitating heat of these parts.

The water of Borazjoon is very brackish and consequently ill-suited for culinary purposes, and drinking in particular. During the night the temperature fell to little over 60° F.

Next morning, the 30th April, we started at 5-30 for Dalakee, where we arrived comfortably at 9-30. The road for the first half of the way is a winding and stony track slightly cut in places to lessen the abruptness of the ascent and descent of the numerous hillocks over which the path leads. For the first half of the distance between Borazjoon and Dalakee the ground is considerably broken up into little knolls and hollows and rises from 50 to 200 feet above the level of the former. Here the vegetation was much more profuse than between Borazjoon and Bushire, and dwarf brushwood and wild flowers, chiefly white and violet, more common. As you approach the last half of this march the country becomes more intersected with dry water courses, the intervening knolls being rounded towards the centre, where the upper crust consists of fine brown alluvium, which, however, owing to want of moisture then only yielded sparse verdure and a small variety of wild flowers. About half way between Borazjoon and Dalakee the prospect to the left was improved by the existence of extensive date groves in the distance and large patches of slender but thickly growing reeds close at hand. Here we saw some birds of the lapwing species, but somewhat differently coloured, also a large black partridge of the kind common to southern Persia. The ground here looked, Captain Napier observed, as likely to shelter wild pigs.

As we approached Dalakee the presence in the atmosphere of a very disagreeable odour of sulphuretted hydrogen became painfully or rather sickeningly apparent to the senses, and we soon found that it was emitted from a narrow stream of water issuing in considerable volume from the base of the adjacent mountain. The water of this streamlet issued from the rock quite warm, and had floating on its surface flakes of oleaginous matter called *napht* by the natives. On exposure to the air for any time this *napht* becomes quite black and of a tarry consistency, in fact it then resembles coal tar in every way for the very sufficient reason that the two substances are almost identical.

The stream issues from two fountains, the smaller of which contains little or no oil, but tastes most unpleasantly of copper. The natives seem to be aware of this, as they told us *mes* (copper) was to be found in the vicinity. The temperature of the oily fountain was 100°F., and tasted of copper strongly and of iron slightly. That the former markedly predominates was evident from the preponderance of the coppery taste and from the bright red colour of the pebbles in the bottom of the stream caused doubtless by cupreous oxidation, whilst only at the margin of the stream was there an occasional tinge of green observable to indicate active *ferro* oxygenous combination. The roof of the small cave which gives exit to the greater volume of water gave attachment to a few stalactites, which circumstance indicates that the mass of the superjacent material contains more carbonate of lime in a state of solution than the small quantity of marbly incrustation appreciable to the naked eye would lead one to expect. The superimposed rock rises to a height of several hundred, perhaps a thousand feet, and is of the recent sandy formation, here and there coated and interlaminated with white marbly concretions of carbonate of lime, with faint dark schistose striations. The neighbouring low land is stony and unproductive. In England this chalky element of the surface soil would have been turned to good agricultural account as in the fertile county of Hereford. The boulders also as well as the small beach stones that lay about in profusion were coated nearly an inch thick with the same marbly film.

The stream is a tributary of the Dalakee River to which it flows in a westerly direction and joins two miles to the south-west of the village of the same name, past which the river flows smartly in the main channel, but is studded on either side with pools of mirrory smoothness and metallic lustre, presenting the most beautiful play of colors. This phenomenon is owing to the combined effect of the copper and iron in a state of solution, and the oil that floats on the surface of the water in a state of change. Whilst walking between the spring and the river I had occasion to look at my watch (a silver one) and was at first surprised to see it quite black. This of course was the result of the chemical combination of the sulphureous vapour with which the atmosphere was largely impregnated with the silver of the watch forming sulphuret of the metal. I mention this to show how great must have been the quantity of sulphureous emanations issuing from the stream.

Regarding this stream of multifarious valuable commodities in solution, I beg to have it pointed out to those concerned that in all probability it is in no distant relationship with most important trade staples, the development of which would not only enrich the speculator, but become the means of materially improving the country by supporting numbers of the labouring class and in adding immensely to the imperial revenues.

In China especially, but also in most other parts of the world, petroleum and iron and copper pyrites are found in connection with coal, and from the quantities of these three substances, especially petroleum, present in the Dalakee stream, there can be little doubt that coal exists at no great distance and in such volume as to at least pay the cost of excavation, which is a great consideration in a country containing so many marauding idlers, as it would afford them employment at the same time that it would supply the inhabitants in general with fuel and the numberless other invaluable commodities obtainable from coal. From the amount of sulphuretted hydrogen emitted from the stream, the probabilities are that the iron and copper ore, whence the sulphuretted hydrogen issues, is in the not uncommon form of a double sulphide of the two metals, which on proper treatment would yield iron, copper, red and yellow ochre, and sulphur; commercial articles of such well-known importance that I need only mention them to create an interest in the spot where there is a likelihood of their being found.

If, utterly unacquainted as I am with coal mining operations, I may yet be permitted a remark, I would opine that the cost of mining at this spot would be comparatively small as no shaft would be required but simply a tunnel (drift in mining phrase I believe) following the course of the water till the object of the search is reached.

The existence of iron ore with coal would render the smelting, &c., of the former a comparatively cheap process, and under such circumstances the enterprise would yield, with proper management, a large percentage on the capital invested.

As regards the petroleum (the *napht* already mentioned), it floats away to the extent of perhaps several thousand gallons per diem, and is thus completely lost. Whereas, without any costly outlay, the oil being easily collected from the surface of the water, a small manufactory might be established on the spot for removing the impurities (of which there is but little) and for the preparation of paraffine for burning in lamps or being converted into candles, &c., and what is now lost to commerce and to the Persian Government, thus be made at once a flourishing enterprise, a source of daily bread to the inhabitants of the whole country side, a stimulus to native energy in the development of the other natural resources of the country, and a means of promoting the national prosperity.

The only hope of success in matters of the sort I have been endeavouring to give prominence to, would be in an European firm of experienced coal owners taking the steps necessary for ascertaining the probable remunerativeness of mining at the spot in question, and then, on finding prospects satisfactory, setting to work with a will.

Dalakee is a small village situated in a slight hollow close to the base of a mountain chain already frequently alluded to, and contains probably one thousand inhabitants. The caravanserai is one storied and therefore very badly suited for a summer halting place. We found the whole place occupied by His Highness the Nawab Ashraf-ood-Dowlah and suite, comprising altogether upwards of 200 persons. So we encamped close by in a tent Captain Napier's servants had already pitched for our arrival. A small stream of water ran near and afforded ourselves and our cattle a plentiful supply, an agreeable change in this respect from Borazjoon. The low land between Dalakee and the sea seems to rise to the north-west, and though it does not rise much in reality, it evidently does rise a little, otherwise the Dalakee River would flow direct westward instead of bending to the south in the direction of Sheef. As a general rule however, the belt of low land between the mountains and the sea so far as we went although almost level yet slopes infinitesimally towards the latter.

Shortly after dismounting I saw among others, who came asking for medical advice and begging, a tall, strong, well formed, handsome, wiry-looking man, apparently about 25 years of age, who complained of severe griping pain of a most anomalous nature, of pain in the heel (I forget which) and fever. On examination I could find nothing wrong with him, and the fact of a man so strong and healthy soliciting medical aid, and so well-to-do in appearance asking alms, seemed to me suspicious, and I mentioned my misgivings as to the integrity of this most mendacious and irrepressible patient to Captain Napier, surmising at the same time that possibly he was one of a band of thieves sent to spy out our luggage. I was led to this suspicion by the impudent and persistent way in which he continued to sit under the tent after I had given him a *placebo* and requested him to go and get something to eat from my servant. Indeed it seems to me highly probable that this visit had something to do with the disasters that two days afterwards befel our caravan.

Here we were tormented with midges beyond the limits of endurance in the day and at night with mosquitoes.

His Highness the Nawab paid a visit to Captain Napier at noon, when I had the honor of making His Highness' acquaintance.

From here the snow clad hills we had seen to the north for the two previous days were very distinctly visible.

The meteorological observations made at Dalakee were as follows:—Maximum in sun 120°, in shade 80°, minimum 60°, wet bulb 58°.

Next morning, the 1st of May, at 5-30 we started for Khonar-thakhte. After an hour's ride over uneven stony ground, studded on either side of the road with the usual underwood, we began the ascent of the mountain pass leading from the plain to the interior of the country. Pedestrians can begin the ascent at Dalakee and thus save about a fursakh of *détour* that is unavoidable to the mounted travellers. The path first ascends to a height of 380 feet pretty abruptly and is very winding, stony, and in parts dangerously slippery owing to the smoothness of almost horizontal slabs of rock that crop up here and there; then descends about 100 feet and follows the centre of a comparatively level but narrow gully, next crosses another slight elevation and comes in contact with a broad lively rushing stream, which eventually becomes the Dalakee River. Indeed, I believe little is added to this body of water between this point and Dalakee village. The stream here has a breadth of 100 feet or more, and flows rapidly over a rocky bed with a margin of small round stones a little coarser than shingle. The water is very brackish and has a marly appearance, from real admixture it would seem, of calcic carbonate. I should say that the milkiness of the water was also due in part to the presence of silicious impurities, as the banks on either side were seen to consist of clay of several varieties studded here and there with large sandstone boulders and at parts inter-ramified with rocky hands now vertical and now almost horizontal. The steep and almost bare precipices around vary in color from reddish brown to pale leaden grey according as oxides of iron or calcic carbonate predominated in the constituent clay.

Two miles further on Dalakee bridge was arrived at. This is a very substantial and not inelegantly constructed piece of architecture, built at the expense of the Persian Government under the supervision of the Musheer-ool-moolk. The bridge spans the river at considerable height in the centre, having six large arches surmounted with strong parapets on either side, and four octagonal pillars rising out of each end of the central portion of the parapet. We here halted for half an hour to give our horses breath and to enable Captain Napier to make a rough sketch of the bridge and some of its most prominent surroundings. Meanwhile, I was accosted by a muleteer of a caravan passing in the opposite direction, who presented a small "pocket letter writer" for my inspection and begged to know if the same belonged to me, though he must have known pretty well it did not. I thought, however, I might as well redeem it for the owner, who, from the name written on the first page, I presumed to be one of the party of Armenians who had gone ahead with Captain Napier's attendants, and accordingly gave the bearer half a kran=half a franc. But holding the coin on his fingers, surveying it with a look of feigned contempt, he said the sum was not enough, whereupon I at once offered to return him the book, at the same time requesting him to give me back the half kran; on seeing this his companion began to laugh, and he looking somewhat non-plussed walked away, preferring naturally the coin that he knew the value of to the book that was of no use to him whatever.

Crossing the bridge we rode along the right bank for about three miles of pretty level road flanked by steep clay precipices which approached so closely at the base as to leave only a mere gorge for the channel of the river. Here one of our guides shot a few of the numerous doves that were to be seen all along the road, taking aim with generally fair effect from the saddle, nor did he ever dismount to pick up the dead or wounded birds, but dexterously leaning over to the right side lifted from the ground the fallen victims of his sport.

Here also we saw a couple of brace of the common red-legged partridge which for once eluded the ruthless aim of our enthusiastic sportsman.

The path now began rapidly to ascend, winding up the mountain armed with projecting bits of rock and strewed with boulders large and small, and so narrow that the ascent became a matter of great difficulty to man and beast. Fearing that my young and slender Arab would find the undertaking too much for him, I dismounted and led him up the now precipitous mountain pass. This was by no means a pleasant occupation, for what with the difficulty of the ascent, and the necessity to guard against being tripped by the horse behind, added to the fact of the breeze being shut out by the wall of rock on either side leaving us exposed to the piercing rays of the sun, no slight amount of exertion and perseverance would have sufficed to enable us to gain the top of the range. Indeed, were it not for a mouthful of water I got from a stagnant pool near the top of the last cliff, I believe I should have succumbed to heat apoplexy, for my temples were already throbbing violently and my mouth, tongue, and throat so dry that I could hardly utter a word, owing I suppose to the temporarily suppressed secretion of saliva caused doubtless by great exertion under a high temperature. On gaining the greatest elevation we were quickly refreshed by a gentle but deliciously cool breeze which elicited our heartfelt gratitude for the benign influence we were conscious it exerted upon us at the moment. The general direction of the pass upwards is north-north-east and the greatest elevation 1,450 feet above Dalakee, as shown by the aneroid barometer, and 2,000 feet above the level of the sea as indicated by the boiling point. This pass, called the Kotel-Maloo, crosses over a height which is composed of the usual loose sandstone of these parts, the coarse and unsymmetrical stratifications of which show a dip directed generally towards the north or north-east. The interposed clay is reddish brown, and gives place here and there to a sort of loamy alluvium incorporating numbers of small stones with an occasional large boulder.

In making this ascent the proper plan would be for each individual of a party to follow the other at considerable distance, otherwise great inconvenience if not absolute danger will always be liable to occur. For sometimes the first horse stops to take breath and blocks up the way in places where it is most hazardous for the succeeding ones to pull up, whereas if a considerable interval were placed at first between each, nothing untoward could happen, let the first or any other rest where he may provided no one halted too long.

The last 800 feet of the ascent rose rapidly indeed often two feet at every step.

While taking breath at the top of the cliff we saw the snow-capped Koh-i-Devai to the north-north-east and another snow crested mountain bearing about due east, and the village of Khonarthakhte pleasantly situated in the middle of a verdant plateau with a date grove here and there, and bordered with hills which rise from three to five hundred feet above the level of the table land; the whole valley presenting that appearance which would lead one to imagine it to be the dried up bed of what once was a lake of Alpine beauty.

The caravanserai is an hour's walk from the top of the pass just described. The ground declines about 200 feet in the distance at a gentle gradient, so that the absolute height of Khonarthakhte is 1,800 feet and 1,250 above Dalakee, thus the height of the latter must be about 500 feet above the level of the sea.

The caravanserai was reached between 10 and 11 o'clock. It was built, we were told, upwards of 80 years ago, and though tolerably commodious for winter occupation, merely contains two small rooms suited for use in the summer sufficient only for one small party. The water given us for drinking was fresh, but on enquiry we found it was rain water, all the pools, puddles and rivulets in the neighbourhood being decidedly brackish. Here the crops of wheat and barley were yet quite green as compared with those between Bushire and Dalakee, but much more ground comparatively was under cultivation and the harvest promised to be still more abundant.

The surrounding hills were all more or less thickly covered with verdure to the summit, affording excellent pasture for the herds of sheep and goats on which the people in great part depend for subsistence.

The inhabitants of Khonarthakhte plateau provide 1,000 guards for the protection of the road and property in general, and supposing each family to supply one, and to consist on an average of five other members, we may estimate the population at 6,000.

The people complained bitterly of the system of oppression of which they were the victims, and which they attributed not at all to the Persian Government but to the greed and heartless exaction of its subordinate agents with whom alone they were permitted to come in contact. The atmosphere of Khonarthakhte was very dry and then very pleasant, but I believe the midday heat during the summer months is very great. This I surmised on seeing an under-ground apartment in the centre of the caravanserai court. The meteorological observations made here were as follows :—Maximum in sun 104°, in shade 79°, wet bulb 58°, minimum 61.°

On the morning of the 2nd May we started at 5 o'clock for Kemarej, our next halting place. Our route first took a north-north-east direction over slightly uneven ground for three miles. Here the ground on either side of the road is more hilly than mountainous, and was then carpeted with pretty close verdure. We now crossed over a few slight elevations and came upon a broad stream flowing rapidly in a north-westerly direction. This is one of the tributaries of the Khisht River, and at the spot we reached it has an elevation of 600 feet above Dalakee bridge as indicated by the aneroid barometer. At this point the hills on the opposite side of the river have a sharply defined outline presenting an appearance at once striking and not wanting in beauty.

The channel of this stream is here about one hundred yards in width and is bordered with boulders, small reeds, and at the time of our visit was aglow at the margin with oleander bushes in blossom.

The banks on both sides slope very gradually, and were then green in most parts, yet the rocks could as a rule be observed, and were seen to present almost vertical stratification to the general direction of the dip being north-east and west. The water not so muddy as that of Dalakee River, and much fresher. On the left bank, situated on a small gusset formed by the river and the adjacent hills, I observed the ruins of what must have been a pretty large house or collection of houses, the latter supposition being the more probable as there was a long unused graveyard close by. The source of this stream, I was informed, is near Shapur. Following the left bank for about 400 yards we came upon a subtributary rivulet, up which the path now winded in almost a south-easterly direction for a short distance, and then suddenly turned to the north again and made a rapid and tortuous ascent till a height of 2,400 feet above the level of Dalakee was arrived at. This brought Kemarej into view, at which we pulled up 15 minutes later, making a descent of 200 feet.

The ascent, excepting a few yards here and there, corresponded with the course of the subtributary already mentioned. The only rock occasionally to be observed in the steep banks of the gorge along which our path lay, was merely a band of coarse sandstones about nine inches in thickness running through alluvium largely impregnated with siliceous matter. Near the top of the highest ridge the rock was of a denser consistency and largely encrusted with marbly concretions of carbonate of lime, and the more largely the marble entered into the composition of the rock the more vertical was the dip of the latter and the deeper and narrower the intervening gorge.

At Kemarej there is no caravanserai, but its place is well supplied by a neat and airy room erected for the use of the officers of the Persian Telegraph Department.

In the afternoon we strolled up the hill to the north of the village and visited some excavations that were pointed out to us as places whence salt (rock) had previously been obtained; some very fine specimens were shown to us. In one large bell-shaped pit we saw quantities of salt here and there like a frosty encrustation on the face of the red foerous constituent clay. But notwithstanding Captain Napier's utmost endeavours, he was obliged to give up his intention of examining the manner in which the salt was disposed in the surrounding matter, owing to the dangerous obstacles the nature of the place threw in his way. From what we saw and were afterwards told it appeared that salt mining was still in operation but not at all seasons of the year. This accounted for our not being able to see the manner in which the Persian miners set to work. The Persian Government for a wonder impose no tax on this salt, which thus becomes a great boon to the people of the neighbourhood.

The Kemarej Valley very much resembles that of Khonarthakhte, but is much smaller in extent, the latter measuring about six miles by ten, while the former we estimated at four by two only. The surface was decidedly greener than we had yet seen on the road, and though rather destitute of trees yet looked cheerful and produced a generally pleasing effect on the eye, especially near the village where the ground was then decked with patches of poppy in blossom. About two-fifths of the plain was under cultivation growing wheat and barley, and the remainder in rich meadow pasture. Potable water is not procurable from wells in this neighbourhood, and the people in consequence have to secure all the rain-water they can possibly collect during the winter months for use throughout the dry season.

The mountains to the north and west of the plain rise from two to four hundred feet above the level of the table land and are composed of what appears to be the product of an ancient mud volcano with large masses of igneous rock standing out here and there forming little hills. The former consists of a mixture of alluvium, strongly ferrous clay, calcic carbonate, and sulphate, and boulders of various sizes, and contains the chloride of sodium, evidently of marine origin, of which we saw a specimen in the shape of rock salt. Along the foot of these hills on the west towards Shapur several small and unimportant ruins were observed. Northward the valley merges into a deep, narrow, rugged and very strong pass, which, however, can generally be avoided by following a path on a ledge of the west side of the gorge.

We arranged to visit the ruins of Shapur and an adjacent remarkable cave on the following morning, and by a hard day's march to reach Kazeroon the same evening. Our people, with the exception of those in personal attendance, started as usual at 2 A.M. and we followed a little before 5.

Before entering the pass leading towards Shapur we were met by two of Captain Napier's followers, who approached us at great speed to inform us that in a straitened position the caravan had been attacked by a number of robbers (they fancied over 100 men) and robbed of money and valuables to a considerable extent; that one of the sowars had been shot in the chest whilst attempting, almost single-handed, to beat off the thieves, and that one of the Armenians had been knocked down, stripped, and severely maltreated. Whereupon we immediately galloped forward, and in the course of half an hour came up to the scene of disaster. On the way we observed several broken boxes with their contents strewed about and a good deal smashed, belonging to our Armenian friends. We found the sowar lying on his back, looking pale, tremulous, and wearing that expression of despairing anxiety so very characteristic of shock from severe and suddenly received injury. The pulse was small and very frequent. On examination I found he had received a gun-shot wound in the chest, the bullet having entered from behind near the posterior angle of the left scapula and made its exit between the third and fourth rib about two inches to the inner of the left armpit. With each respiratory movement blood and froth surged from the opening showing plainly the implication of the intervening portion of the left lung in the track of the missile. After giving him a small quantity of brandy and water I immediately applied a pad protected by sticking plaster over each opening, and a broad bandage over all, round the chest and left shoulder, while this was being done the poor fellow showed that calm manly bravery so very consistent with the daring courage he had previously given proof of in the fray with the robbers. He merely said resignedly—"no matter though I die Doctor, it is my destiny." We then had him conveyed on a rude stretcher, constructed from the unhandy materials on the spot, to Kazeroon, distant from the scene of mishap about eight miles, where, notwithstanding all our efforts to restore him, and Captain Napier spared neither trouble nor expense in his behalf, he died on the morning of the third day, having never recovered from the shock of the injury. Indeed his recovery could hardly be expected, seeing the closeness with which the ball passed the heart. The Armenian had all his front teeth knocked out and had received a lacerated wound in the face, which extended from near the inner canthus of the left eye down along the left wing of the nose, splitting the upper lip in the middle. This was evidently the result of a blow with one of those iron headed maces in common use as a walking stick among the poorer persons. I united the edges of the unsightly gash by three stitches and thus prevented the serious disfigurement that would otherwise ensue, and as for the loss of his teeth, though disagreeable, their place can pretty well be supplied by an artificial set. This unfortunate man was then returning to Ispahan, his native place, to see his mother after an absence of 23 years, having left home in early boyhood and been educated in Bombay and England, whence he had returned to India in the capacity of schoolmaster and scripture reader. He lost 700 rupees in cash (having foolishly declined to accept drafts in Bushire on Ispahan for the amount) and also most of his clothes. Captain Napier lost between three and four hundred rupees in cash, and his Moonshee a much greater amount in fine wearing apparel of Cabul and Cashmere manufacture. Altogether it would appear the robbers possessed themselves of money and valuables to the extent of three thousand rupees. Of this sum over Rupees 800 was taken from a Collector of revenue on the part of the Musheer-ool-Moolk, who had joined our caravan that morning. This poor man was wounded in the front of the thigh, and for two days I failed to discover the missile, but on the third morning after the accident I resolved to persevere in the search as long as the patient could tolerate the pain of manipulation, and after a little trouble hit upon something that communicated a sensation and sounded exactly like dead bone. I then inserted a pair of dressing forceps cautiously and succeeded in grasping the foreign body, which on extraction proved to be a small round stone which had been used as a bullet and had lodged close to the bone of the thigh in front.

We passed Shapur a little to the left. I rode on with the wounded men while Captain Napier went to pay a visit to the chief local authority, with a view to having all the necessary steps taken for the recovery of the lost property and capture of the robbers. The Ket Khoda or master of the village was an old man quite unfit for active exercise owing to an infirmity in one of his feet, but he had previously sent his son with a few horsemen and foot guards in pursuit of the thieves.

Shapur is situated near the middle of a small circular valley and consists at present of a few mean dwellings, standing on the site of the ruins of the ancient city. The surrounding fields were then waving with ripe wheat and barley, but hardly any trees were to be seen. This small valley communicates northward, I believe, by means of a narrow pass with the lower district of Khisht.

Kazeroon plain may be said to terminate northwards in the Shapur valley, which is merely its continuation in that direction on a lower level. It extends southwards for a distance of perhaps 20 miles, and is, what also may be called, the table land between two nearly parallel ranges of hills distant on an average about eight miles from one another, except at the village of Kazeroon where they approximate considerably. Leaving Shapur, proceeding southwards, we found vegetation, especially grass, more and more abundant till near Kazeroon, where its growth was more luxuriant than we had yet seen on the march from Bushire, and crossed several sparkling little streams of fresh water running at right angles to the road, fed I think from khanats for the supply of the gardens with which the neighbourhood is studded, especially near the village.

Kazeroon consists of a number of flat-roofed ancient-looking little houses and contains, I should say, between two and three thousand inhabitants. The Baghi Nazar is the usual place for accommodating travellers. It is a lovely garden, containing avenues lined with orange and jessamine trees, but as it was then occupied temporarily by the Sirteep, *i.e.*, General of the Kazeroon Division, and as I at all events preferred the village for the sake of convenience of necessaries for the wounded men, I at once proceeded to the Telegraph Station, where I was kindly welcomed by Mr. Carapit, the clerk then stationed there, who also placed an apartment at our disposal for the sick. Here I was shortly afterwards joined by Captain Napier, and we, by Mr. Carapit's invitation, took possession of the room adjoining the Telegraph Office. The Sirteep made his appearance almost immediately. This officer, we were informed, is paid by the Persian Government for maintaining 500 mounted guards for protecting the road and keeping order, but nevertheless only employs about thirty poorly appointed horsemen for that nominal purpose. On receiving an account of the attack and a memorandum of the articles lost, he departed ostensibly in pursuit of the robbers, gaily preceded by a led-horse and followed by about five and twenty miserably mounted ragamuffins.

Captain Napier immediately proceeded to investigate the robbery, and had the statements of the Armenians, his own attendants, and some of the muleteers written down, from which it appeared that the number of the robbers could not have been much over fifty; also that some of the muleteers and possibly some of the inhabitants of Kemarej had been cognizant of the impending attack on the caravan. The Moonshee had heard a man in Kemarej on the previous day warning our people not to start till day-light as there were robbers on the road, yet the muleteers insisted on setting out at 2 A.M., all testified to the probability that the thieves belonged to the Eelleats, a set of nomads who subsist by keeping flocks of sheep, cattle and horses, and are plunderers by profession. The robbers, it would appear from the mode of attack, were in collusion with some of our people, for, when in the most difficult part of the pass, Tung-i-Torkan, between Kemarej and Shapur, some of the muleteers told the Armenians who had fire-arms to fire a few rounds to let any thieves that might be lurking about know that the caravan was well protected. This the Armenians did, and their firing was immediately responded to from the hill side, and in an instant the robbers were upon them. Our people, with the exception of the sowar who was killed and another who was with us on leave from the Residency, took to immediate flight, leaving everything to the mercy of the spoilers, who certainly seemed to have made good use of their time, for the whole affair only lasted a few minutes.

In the afternoon of the next day the Sirteep returned, and on being met by Captain Napier and myself in the Bagh-i-Nazar, looked stupid and crest-fallen. We were afterwards told he had just before been indulging in *sherbet* of uncommon quality, which circumstance would account for the silly look he then wore. He had only recovered a few books and papers and not a single article of value, and when questioned, was very reticent as to what he had seen, and how he came by what he had found and brought back. He said merely that he saw a number of robbers on the top of a hill, and having no infantry he was unable to approach them, and on being asked why he had not taken toofangchees, foot-guards, from the villages as he went, gave no satisfactory reply.

During the three days we spent in Kazeroon, we passed each morning and evening in one or other of the gardens. The Agent of a firm of Armenian merchants in Bushire, who own one of the gardens called Bagh-i-now, kindly sent us the present of a lamb and two large trays of roses with bouquets of rose-buds stuck into young apples, which thus appeared like gigantic dahlias, and invited us to come and drink tea with him in the garden in the afternoon. We gladly accepted his invitation, and he accompanied us thither and entertained us in the most pleasing manner. We first sauntered round the garden, and on returning to the spot we set out from, found a small carpet spread on the broad wall of a tank, whereon was strewed a profusion of rose-petals for us to sit upon. Here we squatted *a la Turque* and conversed and drank tea with our kind host, whilst the kalyan, or pipe of peace, was being handed round. Numerous nightingales were flying about, but it being yet too early we had not the pleasure of hearing them sing; indeed, we found out afterwards that it was only in early mornings the Kazeroon nightingales were, as a rule, pleased to warble. We had then a pleasant moonlight ride back to the Telegraph Office, the glow-worm flitting frequently across our path and along on either side, reminding us of more familiar scenes nearer home in the west. Next afternoon we were similarly entertained by Mr. and Mrs. Carapit in Bagh-i-now (there seems to be two gardens called Bagh-i-now in Kazeroon). I am of opinion that the Bagh-i-Nazar can no longer take precedence in beauty over Bagh-i-now to my mind, the latter is much the nicest, though the former has the widest and greatest reputation. In these gardens grow the apple, pear, pomegranates, olive, almond, walnut, orange, citron, jessamine, vine, fig, mulberry, pistachio-nut, lime, quince, and other trees, while roses of various kinds and the wild caper were to be seen everywhere, and of vegetables there was also a considerable variety.

To the east of Kazeroon, towards Shiraz, the snow was seen melting on the highest peaks of the intervening mountains, and what I never observed before, the snow as it disappeared, left the surface utterly nude of vegetation of any sort. Why this should be, even supposing the almost entire absence of anything like soil, I cannot imagine, as the very crevices in the rock itself might ordinarily be supposed to produce something in the shape of vegetable life that would color the hill top.

On the 5th of May we separated, Captain Napier proceeding towards Shiraz, whilst I commenced the return to Bushire. The Resident having requested every precaution to be taken for my safe return, Captain Napier telegraphed to the Governor-General of Fars, His Royal Highness Hissam-oos-Sultaneh, to be so kind as to order my being supplied with a guard as far as Dalakee, and I asked the Assistant Resident to arrange with the Prince Governor of Bushire for my being safely escorted from Dalakee to Sheef. This I did merely as a matter of form, and in conformity with the wishes of the Resident, for I knew well that were any danger to occur the wretched toofangchees would desert me in a moment. No answer having come to Captain Napier's telegram, the Sirteep at Kazeroon was asked to send a guard with me as far as necessary. He promised at once to supply me with an escort, but as far as Kemarej only, and gave me a letter to the Ketkhoda of Kemarej to see to my further requests. More, I now believe, he could not have done, as the people of Kazeroon and Kemarej are continually at feud with one another, and the same with regard to the people of the latter and Khonarthakhte, so that it is only under the greatest pressure and with a guarantee of safety that a small party from one village can be induced to venture on the other's territory. When we were ready to start no guard appearing, we went to the garden where the Commandant and his few sowars were quartered, and found everybody asleep. Captain Napier then, there being no time to lose, went upstairs, roused his Sirteepship out of his slumbers, and politely requested a guard to be supplied immediately. After the lapse of ten minutes spent in getting ready, two wretchedly appointed sowars crawled out, and bidding good-bye to Captain Napier and the Moonshee, I started for Bushire. The two guards accompanied me for about four miles and suddenly disappeared. At this I felt not the slightest apprehension as my instructions had been complied with, and I hoped for little assistance in danger from such a couple of protectors. On the evening of the same day I reached Khonarthakhte and Borazjoon the following night, whence starting at 2 o'clock the following morning, I cut across to Sheef, where I arrived after a tedious eight hours' hot ride in the morning sun, picking my way through a perfect sea of mirage. There I embarked in a boat Mr. Edwards had kindly sent to await my arrival, and crossed over to Bushire, arriving there in the course of an hour and a half.

So far as I could see, in the distance travelled, grain, *viz.*, wheat, barley, and a little oats, the latter being always cut green for animals, were the chief and almost only agricultural products of the country. In the summer and autumn the spots of best alluvium are again put under cultivation for the growth of melons, cucumbers, badingans (a species of salanacae resembling tomato, but of a much less delicate flavour), and other vegetables; but grain seems to be the chief resource of the country for exportation, or perhaps it stands second in this respect to opium.

The manners of the people up-country struck me as very different from those of the inhabitants of Bushire. In appearance the former were not so stout as the latter, but equally tall, either ruddier and franker in address, and the women not so affected with coquettish hypermodesty, but possessing the simple, natural, and not unattractive bashfulness of the rustic. The men and women at Kemarej mixed freely and unrestrainedly together, and the latter even in presence of the former, though somewhat shy at first, were not averse to entering into conversation with Europeans. But perhaps the fact of my being a Hakim (Doctor) becoming known, had something to do with the freedom with which I was approached by the faithful fair of Kemarej. At all events I had not before seen in Persia or Arabia the inhabitants of both sexes in such unfettered enjoyment of one another's society.

The following is a statement of the distances between the different caravanserais on the road between Bushire and Kazeroon and the time required to travel the several stages comfortably on horseback :—

| | | |
|---|---|---|
| Bushire to Ahmedee ... | ... 22 miles, | 4½ hours. |
| Ahmedee to Borazjoon ... | ... 18 ,, | 4 ,, |
| Borazjoon to Dalakee ... | ... 12 ,, | 3 ,, |
| Dalakee to Khonarthakhte ... | ... 9 ,, | 4 ,, |
| Khonarthakhte to Kemarej ... | ... 9 ,, | 3½ ,, |
| Kemarej to Kazeroon ... | ... 16 ,, | 4½ ,, |

Most comfortably travelled in five days.

The following is a statement of the number of hours the distance can be travelled in on occasions of emergency, with a relay of horses and men travelling by day, also of the height of each place above the level of the sea :—

| | | |
|---|---|---|
| Bushire to Ahmedee | ... 2½ hours | Almost perfectly level. |
| Ahmedee to Borazjoon | ... 2 ,, | |
| Borazjoon to Dalakee | ... 2½ ,, | 500 feet above sea. |
| Dalakee to Khonarthakhte | ... 3 ,, | 1,800 ditto. |
| Khonarthakhte to Kemarej | ... 2¾ ,, | 2,900 ditto. |
| Kemarej to Kazeroon | ... 3 ,, | 2,780 ditto. |

Thus the distance between Bushire and Kazeroon can be travelled in one day with two relays of horses and one of men; with relays of horses only a man in good health could do the distance in 20 hours, with an interval of six hours rest and two for meals.

(Sd.) GEORGE WATERS, *Surgeon*,
*July* 1874. *Civil Surgeon, Bushire.*

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*P.S.*—Quite recently owing to the rigorous search conducted under the spirited orders of His Highness the Hissam-oos-Sultaneh, who had then just arrived as Governor-General of Southern Persia, most of the gang of robbers have been captured, and 23 of them put to death by having their throats cut, the usual mode of carrying out the extreme sentence of the law in this country.

# MAP OF THE WORLD,

COMMONLY KNOWN AS

# "THE SECOND BORGIAN MAP."

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On the 8th January 1454, Pope Nicolas V. granted to Alphonso V., King of Portugal, an exclusive right to all the countries that might be discovered by his subjects between Cape Nun, on the west coast of Africa, and the continent of India. After the first voyage of Christopher Columbus (1492) and the discovery of Hispaniola (Haiti), Ferdinand, King of Aragon, and Isabella, Queen of Castile, wished to obtain from the Pope a recognition of their rights to all countries discovered by their squadrons. Pope Alexander VI. (Rodrigo Borgia), who then occupied the Papal Chair, was, by birth, a subject of King Ferdinand's, and he was anxious to secure the assistance of that monarch for certain ambitious designs he had in view, and there existed, therefore, no difficulty in obtaining from him the desired recognition. Accordingly, on the 4th May 1493, Pope Alexander issued a Bull (*copy annexed*), granting to Ferdinand and Isabella, by virtue of his apostolic and pontifical power, the same rights and privileges in respect to the countries discovered towards the south and west as the Portuguese possessed over their African discoveries, and under the same conditions of promulgating the Christian faith; and, further, with the view of preventing any future dispute between the two Powers as to their respective possessions, an imaginary line of demarcation was indicated limiting the pretensions of the two Powers respectively. This line was a meridian drawn from the north to the south pole running 100 leagues from the west of the Azores and the Cape de Verde Islands,* so that all the islands and lands discovered, or to be discovered, to the west of that line, which had not already been occupied by a Christian Power before the previous Christmas Day, were to belong to the aforesaid King and Queen, and to their heirs and successors, as those to the east of the same line were to belong to the Crown of Portugal. It, however, clearly did not occur to the author of this Bull that the two nations, by pursuing their respective courses of discoveries and annexations, would probably meet in the opposite hemisphere; and it was not long before this took place.

The King of Portugal was very discontented with the division made by the Pope, and, after having vainly protested at the Court of Rome, he proposed a conference on the subject to Ferdinand and Isabella, which they accepted in order to avoid a quarrel. Commissioners were accordingly appointed by both parties, who met at Tordesillas in 1494. The Portuguese complained that the line drawn by the Pope was too near to Africa, and prevented them from extending their discoveries and conquests towards the new continent, the extent of which was as yet but little known. In the result it was mutually agreed to extend the line laid down by Alexander VI. for 270 leagues farther towards the west, or 370 leagues from the Cape de Verde Islands; all to the west of that line to belong to the Sovereigns of Aragon and Castile, and all to the east to the Crown of Portugal.

The 3rd Article of the Treaty of Tordesillas, drawn up in accordance with this agreement, indicated how this line of demarcation was to be fixed; the 4th Article stipulated that Spanish vessels should have free right of navigation across the seas assigned to Portugal; and the 5th Article laid down that the new line should only be binding in respect to islands or territories which might have been discovered subsequently to the 20th June 1494. It was further agreed that these arrangements should be submitted to the Pope for his confirmation, which was accorded in a Bull dated the 24th June 1506.

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* These two groups were confused together in the Pope's Bull as one group.

The 3rd Article of the Treaty of Tordesillas, which prescribed that able officers should be sent to the spots for the purpose of fixing and demarcating the points at 370 leagues distant from the Cape de Verde Islands, was never carried out, and, as a matter of fact, it is not easy to conceive how it could have been, seeing that no European had as yet set his foot in the countries which this line would touch. Nevertheless, the want of such demarcation was sure to produce new altercations as soon as the vessels of the two nations happened to come across each other in any part of the great Indian Ocean.

Fernando de Magalhaes (Magellan), who had rendered valuable services to the Portuguese Crown in the East Indies, having returned to Lisbon and not meeting there with the recognition he perhaps not altogether unreasonably expected, left his native country and went to Seville, where he arrived on the 20th October 1517, and offered his services to Charles V. with the view of discovering a new way to the East. The King of Portugal did his utmost, through his agents, to thwart this design, but without effect. Having been placed in command of a fleet of five ships, Magellan sailed from Seville on the 10th of August 1519, and coasting down the South American continent, he discovered the Straits of Magellan in October 1520. In the following month the expedition passed into the Pacific Ocean, whence, taking a course west-north-west, they came to the Philippine Islands, on one of which, called Matam, Magellan was killed on the 28th of April 1521. After this the fleet proceeded, under the command of Joan Lopes de Carvalho, to Borneo, and thence, passing the Celebes, they arrived off the Moluccas and anchored at Tidore on the 8th November 1521, where they were well received by the King and obtained cargoes on favourable terms. Sailing thence, the vessels appear to have got separated, and only one, the "Vittoria," in which was Antonia Pigaphetta, who wrote an account of the expedition, returned to Seville, where it anchored on the 8th September 1522, having thus sailed round the world.

The news of so fortunate an occurrence as the arrival of Magellan's companions in the Moluccas was, on reaching Spain, received by that nation with the liveliest satisfaction; but the Court of Lisbon, jealous of preserving for their subjects the monopoly of the trade in spices, disputed the right of the Spaniards to establish themselves in those islands. Charles V., on the other hand, maintained that they were situated to the east of the prolongation of the line agreed upon by the Treaty of Tordesillas, and within the 180° which commenced from that line, whence it followed that they were comprised in the lot apportioned to Spain. This, however, was not the case, but nevertheless Charles V. promised, in 1523, in the Cortes at Valladolid, to defend this possession, and to come to no compromise with Portugal in regard to it.

The Portuguese had discovered the Moluccas and had established a trade there some years before the arrival of Magellan's fleet, but, while contenting themselves with importing into Europe the spices they produced, had maintained the most profound secrecy with regard to the discovery of those islands. Tidore having, however, admitted the Spaniards to their trade, the Portuguese sent Antony de Brito to Ternate, where a fort was erected for the protection of the trade there.

In 1529, Don George de Meneses, the Portuguese Governor at Ternate, captured the Spanish fort at Tidore, which was commanded by Ferdinando de la Torre, and drove the Spaniards out of the island. The capitulation agreed to by De la Torre stipulated that he should immediately go over to the city of Camaso; that he should commit no hostilities upon the Portuguese, Ternatenses, or any of their friends; and that he should go to no islands that produced cloves. The King of Tidore was made tributary to Portugal, and obliged not to aid the Spaniards.

Thus the Portuguese turned the Spaniards out of the Moluccas, and John II., profiting by Charles V.'s pecuniary necessities incurred by his numerous undertakings, offered him a sum of money to resign his claim to those islands. The respective Commissioners concluded at Saragossa, on the 22nd April 1529, a treaty by which Spain sold to Portugal her rights to these islands for a sum of 350,000 ducats of gold. It was also agreed to draw from one pole to the other a line, 297 leagues and a half east of the Moluccas, that is 17° on the equatorial line. The King of Spain reserved to himself the power of annulling this bargain, but it was stipulated in the Convention that in the event of his availing himself of it, arbitrators should be nominated to determine to which of the two, the King of Spain or the King of Portugal, the possession of the Moluccas belonged, and in that case, whatever the award might be, the King of Spain should refund the 350,000 ducats paid. In the meanwhile, Spanish vessels were excluded from navigation and commerce in the islands, lands, and seas within—*i.e.*, to the west of—the line drawn. The treaty of Saragossa, in terminating the disputes as to the possession of the Moluccas, and fixing a line of demarcation in the Indian Ocean, did not alter in any way the line provided for by the treaty of Tordesillas, 370 leagues west of the Cape de Verde Islands.

The map known as the Second Borgian Map, the original of which is preserved at the Vatican, was the work of Diego Riebro, who was one of the royal cosmographers, and had been made Examiner of Pilots in 1527, in the absence of Sebastian Cabot. On this map are shown the two lines of demarcation between the territories assigned to Spain and Portugal respectively in the Eastern and Western hemispheres. The actual location of these lines was, however, wanting in authority, as it had not been determined from what part of the Cape de Verde Islands the 370 leagues west should be measured, and this, as will be seen, led to further disputes between the two countries.

For a time all controversy as to their respective spheres of influence was stopped by the union of the two kingdoms; but, forty years after the revolution which restored to Portugal her independence, Don Manuel Lovo, the Governor of Rio Janeiro, founded on the northern bank of the Rio de la Plata, opposite to the Spanish town of Buenos Ayres, a settlement to which he gave the name of San Sacramento. This was promptly destroyed by the Spaniards, on the ground that its site was Spanish territory; but the Portuguese refused to abandon their claim, and, after some negotiations, the Provisional Treaty of Lisbon was signed on the 7th May 1681, by representatives of the two Powers, under which the Portuguese were allowed temporarily to re-occupy the post until the points in dispute should have been settled by Commissioners appointed by the two Courts. The Commissioners met on the 10th November 1681, on the banks of the river Caya, in Estramadura, which divides the two kingdoms, and continued their deliberations until the 22nd January 1682, but failed to come to an agreement. The chief difficulty was to decide which of the Cape de Verde Islands was to be taken for the starting point in measuring off the line of demarcation. The Spanish Commissioners contended for San Nicolas, situated in the centre of the group; this would bring San Sacramento into Spanish territory. The Portuguese, on the other hand, maintained that the proper point of departure was San Antonio, the westernmost of the islands, in which case the new colony fell within their boundaries. As neither party would yield on the point, the negotiations fell to the ground. The disputed settlement remained in the hands of the Portuguese, and was confirmed to them thirty years later by the Treaty of Utrecht. Matters remained, however, in a very unsatisfactory condition until 1750, when a new and important effort was made to accommodate the differences between the two countries. In the Treaty of Madrid of that year, all attempts to settle their disputes on the basis of Pope Alexander's line of demarcation were formally abandoned, and new boundaries were traced on the basis of mutual concessions. The Portuguese renounced their pretensions to the Philippines, and ceded San Sacramento and the surrounding district; Spain, in return, handed over to Portugal a tract of territory in Paraguay. But this settlement proved to be far from final, and Don Lovo's colony still continued to be a bone of contention between the two countries. Restored to Portugal in 1761, it again passed into Spanish possession on the breaking out of war in the following year, only to be handed back by the Treaty of Paris in 1763. Finally, however, the Treaty of San Ildefenso in 1777 brought about a permanent settlement. In return for other concessions, Portugal renounced all claim to the disputed district, and the boundaries of their respective territories in the New World were at last settled to the satisfaction of both countries. This arrangement was subsequently confirmed by the Treaty of Prado on the 1st March 1778.

F. C. DANVERS,
Registrar and Superintendent
of Records.

India Office,
24th May 1889.

## BULL OF POPE ALEXANDER VI.

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Alexander, Episcopus, servus servorum Dei, Clarissimo in Christo filio Ferdinando Regi, et Clarissimæ in Christo filiæ Elizabeth Reginæ Castellæ, Legionis, Aragonum, Siciliæ, et Granatæ, illustribus, salutem et Apostolicam benedictionem. Inter cætera Divinæ majestatis beneplacita opera et cordis nostri desiderabilia illud perfecto potissimum existit, ut fides Catholica et Christiana religio nostris præsertim temporibus exaltetur, ac ubilibet amplictur et dilatetur, animarumq' salus procuretur, ac barbaricæ nationes deprimantur, et ad fidem ipsam reducantur, unde cum ad hanc sacram Petri sedem, Divina favente clementia, (meritis licet imparibus), evecti fuerimus, cognoscentes vos tanquam veros Catholicos Reges et Principes, quales semper fuisse novimus, et a vobis præclare gesta toti pæne jam orbi notissima demonstrant, nedum id exoptare, sed omni conatu, studio et diligentia, nullis laboribus, nullis impensis, nullisq' parcendo periculis, etiam proprium sanguinem effundendo efficere, ac omnem animum vestrum, omnesq' conatus ad hoc jamdudum dedicasse, quemadmodum recuperatio regni Granatæ a tirannide Saracenorum hodiernis temporibus per vos, cum tanta Divini nominis gloria, facta testatur; digne duximus non immerito et debemus illa vobis etiam sponte et favorabiliter concedere, per quæ hujusmodi sanctum et laudabile ac immortali Deo acceptum propositum in dies ferventiori animo ad ipsius Dei honorem et imperii Christiani propagationem prosequi valeatis.

Sane accepimus quod vos dudum animo proposueritis aliquas insulas et terras firmas remotas et incognitas, ac per alios hactenus non repertas quærere et invenire, ut illarum incolas et habitatores ad colendum Redemptorem nostrum, et fidem Catholicam profitendum reduceretis, sed hactenus in expugnatione et recuperatione ipsius regni Granatæ plurimum occupati, hujusmodi sanctum et laudabile propositum vestrum ad optatum finem perducere nequivistis; sed tandem, sicut Domino placuit, regno prædicto recuperato, volentes desiderium adimpleri vestrum, dilectum filium Christoforum Columbum, virum utiq' dignum et plurimum commendandum ac tanto negocio aptum, cum navigiis et hominibus ad similia instructis, non sine maximis laboribus et periculis ac expensis destinatis, ut terras firmas et insulas remotas et incognitas hujusmodi per mare, ubi hactenus navigatum non fuerat, diligenter inquireret.

Qui tandem Divino auxilio facta extrema diligentia in mare Oceano navigantes certas insulas remotissimas et etiam terras firmas, quæ per alios hactenus repertæ non fuerant, invenerunt: in quibus quamplurimæ gentes pacifice viventes et, ut asseritur, nudæ incedentes, nec carnibus vescentes inhabitant, et, ut præfati nuntii vestri possunt opinari, gentes ipsæ in insulis et terris prædictis habitantes credunt unum Deum Creatorem in Cœlis esse, ad fidem Catholicam amplexandum, et bonis moribus imbuendum satis apti videntur, spesq' habetur, quod si erudientur, nomen Salvatoris Domini nostri Jesu Christi in terris et insulis prædictis faterentur, ac præfatus Christoforus in una ex principalibus insulis prædictis jam unam turrim satis munitam, in qua certos Christianos, qui secum iverant, in custodiam, ut alias insulas ac terras firmas, remotas et incognitas inquirerent, posuit, construi et ædificari fecit.

In quibus quidem insulis et terris jam repertis aurum, aromata, et aliæ quamplurimæ res pretiosæ diversi generis et diversæ qualitatis reperiuntur.

Unde omnibus diligenter et præsertim fidei Catholicæ exaltatione et dilatione (prout decet Catholicos Reges et Principes) consideratis, more progenitorum vestrorum claræ memoriæ regum terras firmas et insulas prædictas illarumq' incolas et habitatores vobis Divina favente clementia subjicere, ad fidem Catholicam reducere proposuistis. Nos igitur hujusmodi vestrum sanctum et laudabile propositum plurimum in Domino commendantes, ac cupientes, ut illud ad debitum finem perducatur, et ipsum nomen Salvatoris nostri in partibus illis inducatur, hortamur vos quamplurimum in Domino et per sacri Lavacri susceptionem, qua mandatis Apostolicis obligati estis, et viscera misericordiæ Domini Jesu Christi attente requirimus, ut cum expeditionem hujusmodi omnino prosequi et absumere proba mente, orthodoxæ fidei zelo intendatis, populos in hujusmodi insulis et terris degentes ad Christianam religionem suscipiendam inducere velitis et debeatis, nec pericula nec labores ullo unquam tempore vos deterreant, firma spe fiduciaq' conceptis, quod Deus omnipotens conatus vestros feliciter prosequetur.

Et ut tanti negotii provinciam Apostolicæ gratiæ largitate donati liberius et audacius assumatis, motu proprio, non ad vestram vel alterius pro vobis super hac nobis oblatæ petitionis instantia, sed de nostra mera liberalitate, et ex certa scientia, ac de Apostolicæ potestatis plenitudine, omnes insulas et terras firmas inventas et inveniendas, detectas et detegendas versus occidentem et meridiem; fabricando et construendo unam lineam a Polo Arctico scilicet septentrione, ad Polum Antarcticum, scilicet meridiem, (sive terræ firmæ et insulæ inventæ et inveniendæ sint versus Indiam aut versus aliam quamcunq' partem), quæ linea distet a qualibet insularum quæ vulgariter nuncupantur de los Azores y Cabo Verde, centum leucis versus occidentem et meridiem: ita quod omnes insulæ et terræ firmæ repertæ et reperiendæ, detectæ et detegendæ a præfata linea versus occidentem et meridiem per alium regem aut principem Christianum non fuerint actualiter possessæ, usq' ad diem Nativitatis Domini nostri Jesu Christi proxime præteritum, a quo incipit annus præsens millesimus quadrigentesimus nonagesimus tertius; quando fuerint per nuncios et capitaneos vestros inventæ aliquæ prædictarum insularum, auctoritate omnipotentis Dei nobis in beato Petro concessa, ac Vicariatus Jesu Christi, qua fungimur in terris, cum omnibus illarum dominiis, civitatibus, castris, locis, et villis, juribusq' et jurisdictionibus ac pertinentiis universis; vobis, hæridibusq' et successoribus vestris Castellæ et Legionis regibus in perpetuum tenore præsentium donamus, concedimus, assignamus, vosq' et hæredes ac successores præfatos illarum Dominos cum plena, libera, et omnimoda potestate, auctoritate, et jurisdictione, facimus, constituimus, et deputamus.

Decernentes nihilominus per hujusmodi donationem, concessionem, et assignationem nostram nulli Christiano principi, qui actualiter præfatas insulas et terras firmas possederit usq' ad dictum diem nativitatis Domini Jesu Christi jus quæsitum, sublatum intelligi posse aut auferri debere. Et insuper mandamus vobis in virtute sanctæ obedientiæ (sicut pollicemini, et non dubitamus pro vestra maxima devotione et regia magnanimitate vos esse facturos) ut ad terras firmas et insulas prædictas viros probos et Deum timentes, doctos, peritos, et expertos ad instruendum incolas et habitatores præfatos in fide Catholica, et bonis moribus imbuendum destinare debeatis, omnem debitam diligentiam in præmissis adhibentes.

Ac quibuscunq' personis, cujuscunq' dignitatis, etiam imperialis et regalis, status, gradus, ordinis, vel conditionis sub excommunicationis latæ sententiæ pœna quam eo ipso, si contrafecerint, incurrant, districtius inhibemus; ne ad insulas et terras firmas inventas et inveniendas detectas et detegendas versus occidentem et meridiem, fabricando et construendo lineam à Polo Arctico ad Polum Antarcticum, sive terræ firmæ et insulæ inventæ et inveniendæ sint versus Indiam aut versus aliam quamcunq' partem, qua linea distet a qualibet insularum quæ vulgariter nuncupantur de los Azores y Cabo Verde, centum leucis versus occidentem et meridiem, ut præfertur, pro mercibus habendis, vel quavis alia de causa accedere præsumant, absq' vestra, ac heredum, et successorum vestrorum prædictorum licentia speciali.

Non obstantibus constitutionibus et ordinationibus Apostolicis, cæterisq' contrariis quibuscunq': in illo, a quo imperia et dominationes ac bona cuncta procedunt, confidentes, quod dirigente Domino actus vestros, si hujusmodi sanctum et laudabile propositum prosequamini, brevi tempore cum felicitate et gloria totius populi Christi vestri labores et conatus exitum felicissimum consequantur.

Verum quia difficile foret præsentes litteras ad singula quoq' loca in quibus expediens fuerit, deferri, volumus, ac motu et scientia similibus decernimus, quod illarum transumptis manu publici Notarii rogati subscriptio et sigillo alicujus personæ in ecclesiastica dignitate constitutæ, seu Curiæ Ecclesiasticæ munitis, ea prorsus fides in judicio, et extra, ac alias ubilibet adhibentur, quæ præsentibus adhiberetur, si essent exhibitæ vel ostentæ.

Nulli ergo omnino hominum liceat hanc paginam nostræ commendationis, hortationis, requisitionis, donationis, concessionis, assignationis, constitutionis, deputationis, decreti, mandati, inhibitionis et voluntatis infringere, vel ei ausu temerario contraire.

Si quis autem hoc attentare præsumpserit, indignationem omnipotentis Dei, ac Beatorum Petri et Pauli Apostolorum ejus se noverit incursurum. Datum Romæ apud sanctum Petrum, anno incarnationis dominicæ millesimo quadringentesimo nonagesimo tertio, quarto nonas Maii, Pontificatus nostri anno primo.

SOCIÉTÉ DE GÉOGRAPHIE DE LISBONNE

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# LA CONNAISSANCE
# DE LA
# PÉNINSULE ESPAGNOLE
# PAR LES
# HOMMES DU NORD

MÉMOIRE DESTINÉ À LA 10ème SESSION
DU
CONGRÉS INTERNATIONAL DES ORIENTALISTES

Par le Professeur
ADAM KRISTOFFER FABRICIUS
M. S. G. L.

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# LA CONNAISSANCE DE LA PÉNINSULE ESPAGNOLE
## PAR LES
## HOMMES DU NORD

Les anciens hommes du Nord, les Normands, ces écumeurs de la mer, qui longeaient toutes les côtes de l'Europe, ont laissé dans les Sagas un témoignage de la connaissance qu'ils eurent de tous les pays, une véritable géographie avec des noms particuliers.

En Espagne ils avaient fréquenté les côtes de la Galicie, du Portugal et de l'Andalousie. Ils appelaint toute la peninsule *Spán, Spánland, Spánlönd, Spánaland, Spanía, Spaníaland et Yspanía,* du nom latin Hispania. Elle est située entre *Lángbarðaland* et *Frakkland,* l'Italie et la France, ce qui montre que le pays a été regardé seulement du côté de la mer (Werlauff, *Symbolæ ad geogr. medii ævi,* p. 11). Le *Portigal* appartenait à l'Espagne, mais *Galicía, Galizuland* ou *Jakobsland,* ainsi appelée du nom de l'apôtre Saint Jacques, fut regardée comme un pays à part et fut ravagée dans le XIe siècle par un jarl danois Ulf, qui en fut appelé Galizu-Ulf *(Knytlinga saga, Fornmanna,* s. XI, p. 302, Saxo, l. XII, p. 596). Ici était *Far,* Ferrol, où les croisés abordèrent pour monter à Saint-Jacques, *Kompostel* ou *Jakobs.* Le fleuve du Tage, *Tög,* apportait de l'or, d'après Rymbegla, p. 350.

Il y a trois voyages des hommes du Nord, qui jettent de la lumière sur la péninsule Espagnole.

Le premier, celui de *Saint-Olaf,* célèbre Norvégien, a été très contesté. On a cru, que les lieux qui sont nommés dans sa saga, doivent être cherchés sur la côte occidentale de la France, *Ringsfjörðr, Grislupollar, Vilhjálmbœr, Fetlafjörðr, Seljupollr*, *Gunnvaldsborg* et *Karlsá,* noms très difficiles à déchiffrer pour les historiens. La question principale est de définir les deux points extrêmes, *Ringsfjörðr* et *Karlsá;* les autres qui sont à l'intérieur en dépendent. Mais est-il bien sûr que ces noms soient corrects? Est-ce qu'ils sont les noms géographiques du pays, qui par la faute des hommes du Nord quant à la connaissance de ces contrées lointaines ont pris des formes plus ou moins variées, ou sont-ils donnés par eux-mêmes comme noms significatifs, p. ex., *Njörvasund,* «le passage étroit»? Vraisemblablement, ce sont les noms du pays, où les hommes du Nord sont restés si longtemps qu'ils ont dû les connaître, et dans les sagas nous ne trouvons rien, qui puisse leur donner la raison de noms particuliers. L'auteur du drápa ou des chants, d'où la relation de la saga a été tirée, Sighvat Skjald, était un fils de Thor, qui avait accompagné Olaf dans une partie de l'expédition, et ainsi il tirait la relation de la meilleure source. Il nomme distinctement l'ordre des combats jusqu'au treizième. Tout paraît très vraisemblable et très sûr.

P. Munch, le savant historien norvégien, n'a guère raison, en avançant que «les sagas ne suivent que des contes fabuleux», en rejetant le séjour d'Olaf à Karlsá comme une aventure, et en réduisant «toute l'expédition d'Olaf à une invasion pour ravager les côtes de la Bretagne et du Poitou». Mais ses raisons sont peu décisives, et il n'est pas possible de démontrer un seul de tous ces lieux avec tant soit peu de vraisemblance sur la côte occidentale de la France, pas même d'établir une ressemblance quelconque des noms.

La relation immédiate entre *Karlsá* et *Njörvasund* — le détroit de Gibraltar — rend présumable que ces deux lieux étaient situés pas loin l'un de l'autre. Karlsá ne peut pas être

Garonne, comme plusieurs l'ont prétendu (p. ex. Torfœus, *Hist. Norveg.,* III, p. 29; Schöning, *La carte de Heimskringla; N.* M. Petersen, *Régistre géogr. de Fornmanna sögur;* Aall, *La traduction de Snorre,* p. 190; Munch, Kayser, Unger); car des payens ne se trouvaient pas à la Garonne, comme la saga dit de Karlsá, mais à Cadix, c'est-à-dire, des Maures. Pour passer le détroit de Gibraltar pour Jérusalem on ne pouvait pas attendre le bon vent à Garonne, mais à Cadix, et *saga Olafs hins helga,* ch. 37, dit explicitement: *«ætlaði hann þá at sigla til Njörvasunda ok þaðan út i Jórsalaheim».* Toute la description ne peut pas signifier la France, qui était bien connue par les Normands, mais le pays des Blámenn, ou des Maures, qui était pour eux, comme pour les Romains, la fin du monde (Silius Italicus: terrarum finis Gades). Enfin le nom de Karlsá pourrait très bien avoir été donné à la baie de Cadix d'après la statue célèbre de l'homme (karl), qui avait la hauteur de neuf pieds et qui fit une grande impression sur les Normands, comme on le voit du songe d'Olaf à Karlsá. «L'homme lui dit qu'il n'irait pas plus loin, mais retournerait en Norvège, où il règnerait éternellement.» (*Fagrskinna,* p. 71).

En outre, *saga Olafs hins helga,* ch 49, raconte, que Sigurd Syr, qui avait épousé la mère d'Olaf, avait entendu parler des combats qu'Olaf avait livrés vers l'Occident en Espagne (vestr á Spanía). *Symbolæ ad historiam antiquiorem rerum Norvegicarum:* usque Hispaniœ partes profectus. Schöning, dans la chronologie qui precède la Heimskringla II, pense aussi à l'Espagne: «forsan et Hispaniam»; et Riant, *Les croisades des Scandinaves,* p. 99, y place les deux derniers lieux, Seljupollr et Karlsá. Les évènements, qui accompagnent les noms sans aucune interruption, les ressemblances des noms et les directions conviennent le mieux à la côte de l'Espagne.

«Olaf navigua de l'Angleterre vers le sud et livra une bataille à *Ringsfjörðr,* que l'on a pris pour la baie entre la Normandie et la Bretagne; mais pourquoi ne serait-ce pas plutôt la baie de Biscaye, qui justement forme une grande rondeur? «Après, il se rendit *vers l'ouest* à *Grislupollar,* où il combattit des vikings à *Vilhelmsby* et remporta la victoire». Grislepolle pourrait être le port de *Castropol* dans l'Asturie, tout près de la frontière de la Galicie; à une lieue et demie au dessus à Rio Eo est située *Villamea,* peut-être Vilhelmsby. Puis, il se battit vers l'ouest à Fetlafjord, peut-être la grande baie de Flavium Brigantinum, aujourd'hui *Betanzos,* vers le sud-est de la Coruña. Après, il navigua vers le sud jusqu'à Seljepolle, où il livra bataille et prit une grande ville ancienne, qui s'appelait Gunvaldsborg. *Seljepolle* pourrait être une traduction de Çilenorum aquæ chez les Romains, aujourd'hui *Guardia* à l'embouchure du Minho; puisque le vieux «pollr» signifie «trou d'eau, la partie intérieure d'une baie presque close», le nom septentrional pourrait être une traduction du vieux nom latin. Riant, p. 100, fait Seljepolle signifier la baie du Sil, le plus grand affluent de Minho, dont le nom a été transféré au Minho, et présume que Gunvaldsborg est *Tuy,* dont la destruction par Olaf occasiona la réunion de son évêché á celui de Saint-Jacques.

Snorre raconte (Saga Olafs hins helga, 19): Olaf s'était battu pendant deux étés et un hiver vers l'ouest en *Valland,* ce qu'on a compris comme la France occidentale. Mais alors *Valland* n'avait guère une signification aussi distincte; c'est souvent les Pays-Bas (M. N. Petersen, *La géographie ancienne du Nord,* p. 31, 93, 262, etc.), et lorsque le nom signifie le pays des Galles ou des Celtes, il semble avoir été attaché un peu vaguement aux côtes occidentales, qui étaient habitées par les peuples celtiques.

En outre, Olaf avait dans cette expédition ravagé la France occidentale et séjourné dans la Normandie, ce que l'on appellait proprement *Valland.*

Quant au temps, on a fait l'objection que l'expédition dura deux étés et un hiver, ou très longtemps; mais Olaf arriva en 1013 en Normandie et ne retourna qu'en 1015 en Angleterre, et de là en Norvège.

Ainsi, il y a un bon espace pour son expédition en Espagne, laquelle a dû avoir lieu en 1014.

Quelques traditions fabuleuses qui se trouvent dans un manuscrit plus récent que la saga, p. ex. qu'il vainquit une sirène (*margygr,* de *marr,* mer, et *gygr* monstre) et un sanglier, sont evidemment des fictions, qui sont faites pour célébrer le héros royal du Nord, tout comme ce qu'on raconta plus tard en Norvège de ses victoires sur les *jætter* et *trolde.* Elles ne se trouvent point dans les plus anciens manuscrits, ni chez Snorre, et conséquemment, elles ne diminuent pas la certitude historique de l'expédition.

Le chemin occidental (Vestrvegr) le long des côtes de l'Espagne était le plus commode pour les hommes du Nord, en particulier pour les Norvégiens, qui cherchaient la Terre Sainte et aimaient la mer, mais il était plus long et plus coûteux et demandait plus de dépenses pour l'équipement et l'armement; aussi les rois et les princes seuls pouvaient-ils le choisir. Néanmoins, il était très attrayant par ses périls et aventures nombreuses, et le riche butin des Maures en Espagne et en Afrique. Mais on ne distinguait pas toujours entres les côtes chrétiennes et mauresques, et *Hist. Compost.* appelle avec raison tous ces croisés des pirates.

Une centaine d'années plus tard après celle d'Olaf, une nouvelle expédition se faisait par le voyage du jeune roi *Sigurd,* fils de Magnus Barfod, qui à l'âge de treize ans était devenu roi de Norvège, en 1103, et brûlait du désir de se signaler. Il prépara une expédition pour la Terre Sainte, qui vint éclipser toutes les autres croisades du Nord et acquit au jeune roi le surnom de Jorsalafar. La fierté du peuple a éternisé cette expédition, dont nous avons des relations très complètes. Jérusalem avait été nouvellement conquise dans la première croisade, et le roi danois Erik Ejegod avait dans son voyage reçu les plus grands honneurs. Tout cela devait enflammer un jeune prince ambitieux, qui ne cherchait pas le butin et les richesses, comme quelques-uns le prétendent, mais la gloire. Des préparatifs très vastes n'étaient achevés que dans la quatrième année.

Dans l'automme, 1107, Sigurd, qui avait alors 17 ans, quitta Bergen avec 60 grands vaisseaux et 10,000 guerriers éprouvés. Aprés avoir passé le premier hiver en Angleterre, il voulut rester le second en Galicie; mais le gouverneur ne tint pas sa promesse de lui procurer des vivres pour payement, ce pourquoi Sigurd et ses guerriers assaillirent son château (Compostella?) le prirent et firent un grand butin. Au printemps de 1109 Sigurd longea la côte du Portugal, vainquit une grand flotte mauresque, prit *Sintre* (Cintra), et tous les Maures furent égorgés, qui ne voulurent pas se faire baptiser: c'était la coutume des croisés, un exploit, par lequel Sigurd acquit «la gratitude de toute la chrétienté», dit la saga, outre un grand butin. De là il passa à Lisbonne, dans la saga *Lissibon*, «un très grand château en Espagne, qui est demi-chrétien, demi payen; il fait la frontière parmi les deux peuples; de l'autre côté tout est payen (mahométan)». Or, le fleuve du Tage, *Tög*, était alors la frontière. Aussi Sigurd fut-il victorieux ici; cependant, il ne conquit pas la ville, mais un château près de la ville (Fagrskinna, ch. 243). Il navigua de Lisbonne le long de la côte occidentale de l'Espagne, où il conquit un château, qui dans les sagas et le drápa de Halldor Skvaldra est appelé *Alkassi* ou *Alkassa*, sans doute Aljezur (ou peut-être Alcacer [do Sal]) vers l'ouest de l'Algarve, qui convient le mieux par sa situation entre Lissabon et *Njörvasund*. Munch a raison, quand il remarque que le mot arabe Al Kasr signifie «le château, la forteresse», en général; ainsi, un château dans cette contrée. Ici on exerça des cruautés, qui «faisaient pleurer du sang aux femmes payennes». Tout ce qui ne se sauva pas par la fuite, fut égorgé. Ainsi, Sigurd augmenta la frayeur qui régnait chez les Maures contre les «Madjous», et pour cause.

A *Njörvasund* il vainquit une grande flotte de pirates mauresques et longea *Serkland* ou pays des Sarrasins, nom qui pourrait aussi bien signifier l'Espagne méridionale ou l'Andalousie, que l'Afrique septentrionale ou le Maroc. Il arriva à *Formintera,* une des îles Pythiouses, où les pirates des nègres *(Blámenn)* et les Sarrasins furent étouffés par la fumée d'un bûcher, qui fut allumé à l'entrée d'une caverne qu'ils avaient pris pour réfuge. Pas un seul ne se sauva. *Ivitza,* Mayorca et Minorca *(Manörk)* furent aussi ravagées. Puis, Sigurd continua son voyage vers la Sicile et la Terre Sainte.

Le troisième voyage, qui au contraire se rapporte à l'intérieur de l'Espagne, est celui de la princesse norvégienne *Christina,* fille du roi Hakon IV, ou *le Vieux,* pour épouser un des fréres d'Alphonse X, le Sagvant (1252–1284). Dans l'automme (1256) Christina s'en alla avec l'évêque Peter de Hamar, Andreas *Nicolassön* et une suite de 120 personnes, plusieurs dames nobles et une dot de beaucoup d'or, d'argent et de pelleterie blanche et grise, pour Yarmouth en Angleterre et la Normandie, et de là, suivant le conseil de Saint Louis, par Narbonne et au-delà des Pyrénées à *Gerun* et *Barzalon,* où le célèbre roi d'Aragonie Jaime (Jacques) le *Conquérant* la reçut avec beaucoup d'honneur, et fut tellement épris de sa beauté, qu'il la demanda en mariage, mais en vain, car les conseillers de Christina le trouvèrent trop vieux. Le 23 décembre 1256 elle arriva à *Sarre* en Castille, peut-être Sarrasin, deux lieues au sud de Burgos, et le lendemain, la veille de Noël, à *Byrgs,* Burgos, où elle passa le Noël et offrit un précieux vase d'argent. Le 28 décembre elle vint à *Palenz* (Palencia), où le roi Alphonse la reçut hors de la ville, et le 3 janvier 1257 à *Vallident* où *Valdelikt,* Valladolid. Elle choisit parmi les trois frères d'Alphonse — Frédéric, Sancho, élu archevêque de *Túlet,* (Toledo) et Philippe, élu archevêque de *Sibilia,* (Sevilla) au dernier desquels elle fut fiancée le mercredi des cendres, 6 février. Après sa demande, Philippe promit aussitôt de faire bâtir une église en honneur de Saint-Olaf. Les noces furent célébrées avec beaucoup d'éclat le dimanche après Pâques, 31 mars 1257, et les ambassadeurs Norvégiens quittèrent l'Espagne avec des dons considérables, par exemple 960 marcs d'argent pour viatique.

C'est à la saga *Hákonar Hákonarsonar* que nous devons les details de ce voyage remarquable. D'après Munch, les archives espagnoles n'en contiennent rien, car il l'a en vain démandé à la «Real Academia de la Historia» de Madrid.

Nous possédons en outre dans le Nord deux *itinéraires* latins ou descriptions de voyage à la terre sainte, avec l'indication des endroits par où il fallait passer. L'un est danois, peut-être du commencement du xii$^e$ siècle: il nomme *Far*, Sanctus Jacobus, Leskebona, Narvèse *(Njörvasund)*, Tarragunn et Barzalun. L'autre, qui quoique fragmentaire, est beaucoup plus complet, se trouve à Christiania et décrit un pélérinage du xiii$^e$ siècle. L'auteur est le franciscain Mauritius de Bergen, homme lettré et diplomate, qui suivit Andreas Nikolassön, un des *lendermen* (hommes nobles) les plus renommés en Norvège et qui avait accompagné la princesse Christina en Espagne. Ils partirent le 17 janvier 1271, mais Andreas mourut dans la Méditerranée en 1273. Beaucoup de lieux sur la côte d'Espagne sont nommés, arabes et latins, mais pas une seule forme n'est tirée de la langue du Nord. Il y a de curieux les noms de *Njörvasund:* strictus Marrochitanus, dans l'autre itinéraire Strictum Mare, ce qui semble être une traduction de *Njörfa- Njörva- Nörvasund*, anglo-saxon *nearu*, anglais *narrow*, «étroit, serré».

Le suédois *nor* est un passage étroit entre deux lacs, fretum angustum inter duos lacus (Ihre, Glossarium, ii, 257); et le danois *nör* «une baie qui entre dans le pays et s'unit de la mer par un canal étroit» *(Videnskabernes selskabs ordbog,* s. 123), p. ex. *Stege, Korsör, Skælskör nör, Norsminde* non loin d'Aarhus; dans *Sönderjylland nör: Selker, Haddeby nör.* Le détroit de Gibraltar s'appelle aussi *Stólpasund,* tout comme celui de Constantinople, nom tiré de «*Erkúles stólpar*», les colonnes d'Hercule *(Fornmanna sögur,* xi, 416), d'après la tradition rapportant qu'Hercules les avait placées là pour désigner la limite de son progrès vers l'occident.

*Gaðis*, Cadix, est connu comme l'endroit où l'Europe finit et l'Afrique commence: *þángat til tekr Evrópa, en þaðan frá Affrika (Fornm. sögur*, XI, 415). *Serkland*, de *Serkir*, les Sarrasins, qui demeuraient des deux côtés du détroit de Gibraltar, est aussi le nom de tous les pays des Sarrasins, dans toutes les trois parties du monde, autour de la Méditerranée: c'est ainsi que la Perse est appelée dans Stjorn. On divisait l'Espagne en *Spán hin kristna* et *Spán hin heiðna;* ainsi, tous les districts au sud de Lisbonne et du fleuve Tage sont payens.

Les hommes du Nord avaient une connaissance suffisante de la péninsule Espagnole, aussi bien extérieurement sur les côtes, qu'à l'intérieur, grâce aux communications fréquentes, tantôt paisibles, par exemple, les pélerinages, tantôt belliqueuses, les invasions. Pour un seul voyage qui a été mentionné, on en a peut être entrepris une centaine, dont on n'a pas fait mention.

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*Em homenagem ao trabalhador incomparavel, e como prova de solidariedade, na grande obra do centenario, que nos une indissoluvelmente.*

LISBOA, 11 de Novembro de 1897.

Magalhães Lima

Minhas Senhoras e Meus Senhores:

O meu fim, inaugurando as conferencias do centenario, não é, de modo algum, fazer uma dissertação historica, scientifica, philosophica ou geographica, sobre o grandioso acontecimento que o paiz, em breve, vae celebrar. E' antes mostrar como a gloriosa iniciativa da *Sociedade de Geographia de Lisboa* foi recebida e acolhida no estrangeiro, e provar aos que fazem o favor de me ouvir que, apesar da nossa pequenez, do nosso descredito, e do nosso afastamento quasi systematico dos centros europeus, temos rasão de sobra para nos orgulharmos e para nos envaidecermos pela solidariedade com que nos honram sabios, professores, homens de letras, jornalistas, academicos, historiadores e geographos de todos os paizes.

Meus Senhores: as nações não se assignalam sómente pela sua grandeza material, pela extensão do seu territorio, pelo poder das suas industrias, ou pelo brilho dos seus feitos militares. Ha factos moraes que as engrandecem e elevam, tornando-as invejadas aos olhos do mundo; e, entre esses factos, devemos citar os nomes dos seus filhos bem amados, os nomes dos seus homens eminentes, com rasão chamados os *bemfeitores da humanidade*, e o quinhão que cada um dos seus apostolos trouxe á grande obra da civilisação humana. Assim, por exemplo, quando se falla da Allemanha, não é raro ouvir appellidal-a a patria de Gœthe e de Schiller, a patria de Mozart e de Beethowen; e da Inglaterra, a patria de Lord Byron e de Shakespeare; e da Hespanha a patria de Cervantes; e da França, a patria de Racine, de Molière e de Victor Hugo, a patria de Lamartine e de Gambetta; e da Hungria, a patria de Kossut; e da Grecia a patria de Homero; e da Italia a patria do Dante, do Raphael, e do Miguel Angelo, a patria de Mazzini e de Garibaldi.

Portugal é quasi completamente desconhecido no estrangeiro. Digo-o, com profunda amargura e verdadeira tristeza. No extraordinario movimento renovador, ao mesmo tempo philosophico, scientifico, artistico e litterario que caracterisa o mundo moderno, todos os nomes são conhecidos, todos os nomes são queridos, e todos são amados. N'essa especie de communhão espiritual que nos une a esses homens, como filhos da mesma civilisação e da mesma sociedade, quasi chegamos a viver nas suas obras e a identificar-nos com os seus ideaes luminosos. São-nos familiares todos os paizes, assim os grandes como os pequenos: a Allemanha, a França, a Inglaterra, como a Grecia, a Roumania, e a Bulgaria. De Portugal mal se conhece um nome, e mal se cita um unico dos seus homens de Estado.

E se Portugal existe, e o seu nome se repercute e se perpetua lá fóra, é ainda, — não o esqueçamos nunca! — por ter sido a patria de Camões e de Vasco da Gama. Poderão muitos não ter lido os *Lusiadas;* poderão muitos desconhecer a altissima significação historica do descobrimento do caminho maritimo para a India. Mas o que todos sabem e o que ninguem ignora é que são estes os dois homens illustres que consubstanciam a alma, a vida, as aspirações e as glorias da nacionalidade portugueza.

O centenario da India, é, para assim dizer, a continuação, o complemento do centenario de Camões, assim como Vasco da Gama é uma projecção radiosa dos *Lusiadas*. A celebração do centenario de Camões, exigia, como consequencia logica, a celebração do centenario do Gama. Eis o motivo, porque, na minha qualidade de portuguez, me rejubilo, me felicito e me congratulo com a brilhantissima commemoração que se projecta, que, além de uma piedosa homenagem, era uma divida, em aberto, que nos cumpria satisfazer, mórmente n'um periodo de decadencia moral, de egoismo grosseiro e de indifferença criminosa como aquelle que atravessamos.

Creio que não me engano nem faço affirmações temerarias ou gratuitas, dizendo que ha de ser, principalmente, o estrangeiro quem maior relêvo ha de dar e quem mais ha de contribuir para o luzimento das proximas festas. O estrangeiro, meus senhores, comprehendeu que a commemoração do centenario da India é mais alguma coisa do que uma simples reivindicação nacional, porque representa um acontecimento universal, cosmopolita e internacional que a todos interessa egualmente. Não é patrimonio de um paiz; é patrimonio da civilisação. Portugal parece ter perdido a consciencia do que foi, a consciencia da sua historia, por que só assim se póde explicar a frieza de muitos, a má vontade de alguns e a indifferença de quasi todos para com a projectada celebração.

Quando, em Stockholmo, me avistei com o celebre e celebrado explorador sueco Barão Nordenskiold, ao ouvir as suas palavras, tão repassadas de sentimento e de sinceridade, quasi me julguei transportado, em espirito, ao periodo viril da nossa historia em que a nossa bandeira atravessava, impavida, os mares, impondo respeito e enchendo de assombro todas as demais nações.

O Barão de Nordenskiold é um velho que mantem e possue, aos setenta annos de edade, a frescura de um espirito e de uma mocidade perenne e communicativa.

A sua physionomia recorda um pouco a de Bismarck: sobrancelha carregada, mas de trato ameno, de maneiras captivantes e de uma simplicidade quasi infantil.

Nordenskiold e Nansen, são, sem contestação alguma, as duas personalidades mais em evidencia da Scandinavia actual, para não fallar em Ibsen e em Björnson no campo litterario, dramatico e artistico.

Nansen, que certamente conheceis pela sua arrojada viagem ao pólo norte, representa a ousadia, a coragem e a tenacidade na aventura. Nordenskiold é a mais alta expressão da consciencia e da probidade scientifica e pessoal.

Foi elle o primeiro a fallar-me no centenario e a informar-se dos nossos projectos.

—Que só um imbecil, disse, podia desconhecer a grandeza, o alcance e a extensão de semelhante facto; que ficasse descançado e que assegurasse aos meus amigos, membros da *Sociedade de Geographia* que, em Stockholmo, a commemoração havia de fazer-se á altura do famoso descobridor portuguez.

Estas palavras contrastam singularmente com o argumento invocado pelos nossos Estadistas, quando dizem que o estrangeiro não vê, com bons olhos, a ideia da celebração do centenario, nas condições economicas e financeiras em que nos encontramos.

Mas não ha nada mais falso nem mais absurdo.

Em primeiro logar cumpre-nos dizer — e é mister que isto se diga para destruir uma nota lançada em circulação propositadamente no intuito de ser desagradavel á commissão — a celebração do centenario não custa um ceitil ao thesouro. São conhecidos os nossos recursos: a cunhagem da moeda e a cunhagem da estampilha, além de outras pequenas fontes de receita. Quem paga a cunhagem da moeda? Somos nós. Quem paga a cunhagem da estampilha? Somos nós. Isto pelo que diz respeito a rasões internas. No ponto de vista externo, vêr-se-ha, pelos factos, como temos a rasão por nós.

O povo portuguez goza, por toda a parte, de merecidas sympathias, e é tido no conceito de um povo bravo, bom e docil. Os governos é que nem sempre são apreciados do mesmo modo favoravel. Mas uma cousa me foi dado verificar, durante a minha viagem: a immensa consideração de que goza tambem, por toda a parte, a *Sociedade de Geographia.* O prestigio que a rodeia é enorme. Um simples facto bastará, para dar uma prova do que deixo dito.

Tendo assistido, como representante da *Sociedade*, á conferencia inter-parlamentar que se realisou em Bruxellas, no passado mez de agosto, com grande surpreza minha, vi-me instado e sollicitado pelo seu presidente, o sr. Bernaert, que é tambem o presidente da camara dos deputados d'aquelle paiz, para subir á tribuna e para tomar a palavra. Respondi que não era deputado e que nunca o havia sido, felizmente.

«Nada importa isso! retorquiram-me. O representante de uma sociedade tão importante, como a *Sociedade de Geographia,* vale bem, senão mais, o representante de uma circumscripção eleitoral.»

Tive occasião de verificar, n'esse dia, quanto a nossa raça maravilhosa e a nossa historia sem egual são apreciadas e admiradas no estrangeiro.

Estabelecendo um confronto entre Christovão Colombo e Vasco da Gama, disse: que os portuguezes haviam descoberto metade do mundo e que sé não tiveram a gloria de serem os descobridores da America, como o haviam sido da Africa, fôra isso devido ao facto de haverem os nossos governantes recusado os serviços de Colombo; que o Brazil equivalia, ainda assim, a toda a Europa, em extensão territorial; que Vasco da Gama, com a descoberta da India, devassára os segredos e os mysterios do Oriente, e prestára o mais assignalado serviço, até hoje conhecido, ao progresso e á humanidade, ligando entre si duas civilisações, até ali separadas por um abysmo; inaugurando para o trabalho e para o commercio um novo periodo—por isso que a historia do commercio e da industria estão intimamente ligadas com este facto—e abrindo definitivamente a era colonial que caracterisa a politica moderna; que se abalançára a tão ousado commettimento, não com a mira em qualquer conveniencia pessoal ou em qualquer conquista sangrenta, mas simplesmente por amor da sciencia, do paiz, e da civilisação, o que era verdadeiramente assombroso para aquelles tempos em que só a guerra e a conquista eram apreciadas e comprehendidas.

Estas palavras despertaram o interesse dos representantes de todos os parlamentos e foram acolhidas com vivas demonstrações de affecto e de applauso. A conferencia interparlamentar estava definitivamente ganha para o nosso paiz.

Está presente o sr. Conde de Tovar, nosso digno ministro em Bruxellas, e eu peço á assembléa que se associe a mim, para lhe manifestarmos publicamente o nosso reconhecimento pelos serviços com que nos honrou, durante a minha estada n'aquella cidade, e pela sua cooperação tão patriotica, tão leal e tão efficaz.

No congresso da imprensa, além de alludir á celebração do centenario nos mesmos termos patrioticos e effusivos, fiz vêr como este paiz, pelo seu clima sem egual; pelo azul do seu firmamento; pela belleza da sua paisagem; pela magesnatureza opulenta, privilegiada e unica a que Lord Byron, o grande poeta inglez, alma insoffrida e viajante infatigavel, chamou o *Eden do mundo*, no seu *Child-Harold;* pela sua architectura originalissima, typica, tão local, tão caracteristica e tão em harmonia com os seus feitos maritimos, que mereceu a Edgar Quinet uma visita especial; pelo seu cantor immortal que fórma com Homero e Virgilio a maior trilogia poetica conhecida; como este paiz, pelo culto dos seus grandes heróes, estava disposto e resolvido a continuar a obra luminosa dos seus antepassados.

E estas phrases, que resumem toda uma aspiração generosa e um anceio de bem estar e de felicidade, foram correspondidas pela solidariedade que vem do coração e que vincula as almas n'um mesmo pensamento e n'uma mesma vontade.

No congresso de Hamburgo, se, por um lado, me era mais facil a tarefa, por outro lado, o exito era mais incerto e duvidoso.

A facilidade provinha da propria significação do centenario que é uma celebração eminentemente pacifica, e em perfeita harmonia com os principios que os congressos da paz proclamam e defendem. Se alguem, com effeito, contribuiu para estreitar os laços da fraternidade humana, foi certamente Vasco da Gama, aproximando, entre si, homens e continentes. Mas o congresso era-nos violentamente disputado pelos italianos, e d'ahi a difficuldade.

Ninguem imagina que somma de trabalho, de esforço e de paciencia é precisa para destruir no estrangeiro prejuizos e falsas noções, que os espiritos, ainda os mais illustrados, nutrem sobre Portugal. Um amigo meu apresentou-me a um celebre orador allemão, deputado ao *Reichstag*, nos termos mais simples e familiares: «o sr. Magalhães Lima, de Lisboa». —Ah! sim, Hespanha, concluiu o cavalheiro em questão. Ha-de perdoar—retorqui eu. Portugal, Portugal se me faz favor. E estes que desconhecem ou fingem desconhecer a nossa existencia, como nação livre e independente, são ainda os mais amaveis para comnosco. Ha outros que apontam os Pyrineus, como a grande cordilheira que separa a Europa da Africa. Conta-se que uma grande dama franceza, convidando certo embaixador portuguez para uma das suas festas, lhe rogára muito particularmente que viesse vestido com os trajos do seu paiz, não esquecendo o arco e a flecha. Africanos! nos consideram effectivamente muitos, pelo nosso atrazo, pelo nosso analphabetismo, que roça pelo dos paizes mais atrazados e selvagens, pela nossa incuria, e pelo nosso desmazello.

Lisboa, á semelhança de uma velha cidade arabe em decadencia, apresenta-me muitas vezes, por uma estranha aberração do meu espirito certamente, o aspecto de uma cidade morta. Ha falta de vida, falta de sangue, falta de paixão, e uma completa ausencia de ideal, porque só, por uma completa ausencia de ideal, se póde admittir que portuguezes não honrem, com o mesmo enthusiasmo, com a mesma fé civica e com a mesma devoção religiosa a mais bella, a mais rutilante, e a mais gloriosa pagina da sua historia e da historia do mundo.

Voltemos, porém, ao allemão.

O allemão, que tem muito papel portuguez na gaveta, não poude ainda perdoar-nos o feio delicto de não havermos regulado a nossa situação com os credores externos. Mas fiz-lhe vêr que todos eramos egualmente credores de Vasco da Gama; que essa divida era sacratissima e só com a homenagem dos paizes civilisados se poderia saldar. O contrario seria mostrar um profundo desconhecimento da historia e fazer obra de destruição, anti-civilisadora e anti-humana até.

Todas as contrariedades, porém — se contrariedades houve — me foram sobejamente compensadas pelo acolhimento que a ideia do centenario obteve em França, e particularmente em Paris.

Sabios como Schefer, Lefèvre-Pontalis, Levaseur; pintores como Puvis de Chavannes, Bonnat e Detaille; compositores como Massenet e Saint-Saens; escriptores como Emile Zola, Paul Bourget, Fredéric Mistral; jornalistas como Hervé e de Rodays; investigadores como Leopold Delille, Gabriel Marcel; homens do mundo como o Barão de Lagé e o marquez de Croizier; todos, á porfia, se empenharam em tornar indelevel e eternamente duradouro o monumento que ha de perpetuar a memoria d'aquelle que, nas fulgurações dos Lusiadas, ainda mais que no marmore ou no bronze, encontrou o seu maior pedestal de gloria. Só o numero unico commemorativo, consagrado, pelos francezes, a Vasco da Gama, teria valido bem a cruzada a que tão do coração me consagrei, durante os tres mezes da minha viagem.

A todos os esforços e a todas as tentativas, sobreleva, porém, em dedicação, em sollicitude, em carinho, e em amor pelo nosso paiz, uma mulher que devemos apontar ao reconhecimento publico, como aquella que mais trabalhou para o exito da famosa consagração. Refiro-me a Madame Juliette Adam, cuja obra é superior a todo o elogio e a todas as homenagens. Compense-nos, ao menos, esta prova de affecto, os desgostos que, por outro lado, do estrangeiro, temos soffrido e tolerado passivamente.

Pensam alguns que o paiz não está em condições de convidar, para sua casa, estranhos e forasteiros. E' certo, e é esta a opinião de alguns amigos meus, que, pela nossa situação geographica e pelo nosso feitio moral, não temos sabido estreitar as relações internacionaes. Mas não obsta isso a que o centenario seja o inicio de uma nova era, para a nação, chamando e attrahindo a si o estrangeiro que, á semelhança de corrente caudal, tem levado a alegria, a abundancia e a riqueza a tantos paizes e que bem podia ser para nós um elemento de prosperidade e de melhoría economica.

Dois fins tive, principalmente, em vista, com a minha propaganda no estrangeiro: 1.º levantar o bom nome portuguez tão desacreditado, tão infamado e tão injustamente calumniado lá fóra, mais por culpa das nefastas administrações que nos teem arruinado e dos politicos que nos teem compromettido do que por culpa do povo, que não tem a minima responsabilidade de semelhante facto; e 2.º attrahir o estrangeiro a Portugal. Se isso se conseguir com a celebração do centenario, terá a commissão motivo de sobejo para se louvar, porque terá concorrido, com avultado quinhão, para o desenvolvimento material, moral e intellectual do paiz.

Precisamos de attrahir o estrangeiro a Portugal.

Que seria de Paris sem o seu milhão de estrangeiros? E da Suissa, onde o estrangeiro constitue a principal fonte de riqueza, e da Hollanda, e da Italia, e da Belgica, e de tantos outros?

A necessidade de attrahir o estrangeiro é hoje reconheo rei Oscar gastasse, do seu bolso, mais de quarenta contos de réis, com o ultimo congresso da imprensa. A Scandinavia tornou-se a viagem predilecta dos *touristes* durante o verão, assim como o Egypto o é durante o inverno. Representa, porém, isso, um trabalho enorme de propaganda de muitos annos. Pois bem! meus senhores: Aproveitemos o centenario da India, para começar tambem a nossa propaganda; appellemos para todas as classes sociaes sem distincção; appellemos para o commercio e para a industria; appellemos para a imprensa e para o povo trabalhador, porque todos são egualmente interessados n'isso; compenetremo-nos todos d'essa necessidade, e, n'um esforço commum, tentemos, pela nossa propria iniciativa, o que nem governos nem corporações foram capazes de fazer até hoje no interesse de todos.

Não se trata só de corresponder áquelles que, para honrar o nosso paiz, mandavam içar a bandeira portugueza, na nossa passagem, e, ao som do hymno nacional, acclamavam phreneticamente Portugal e Lisboa, como nos succedeu em Sundswald e Ostersund, e ainda em Berlim. Está aqui presente o meu bom amigo e companheiro de viagem, Jayme Victor, que sabe bem quanto tudo isso nos commoveu.

Trata-se de mais alguma cousa: trata-se do nosso engrandecimento, do nosso futuro e da nossa prosperidade. Trata-se de nós mesmos. E, se razões civicas, humanitarias e internacionaes, não prevalecem ou não pódem calar em todos os espiritos — façamos obra nacional, façamos obra portugueza, quando menos, por egoismo.

Dentro em poucos mezes, este salão, que bem póde dizer-se um salão europeu, tornar-se-ha o *rendez-vous* de todas as nações do mundo. Quatrocentos jornalistas, vindos de todos os pontos do universo, tomarão parte no congresso da imprensa. Serão quatrocentos individuos, quatrocentos mensageiros a fallarem de nós, a espalharem o nosso nome e a concorrerem para o nosso credito e para a nossa regeneração. Se, ante essa espectativa consoladora, o nosso coração não estremece, a nossa alma não vibra, não se commove o nosso espirito, — não sei, então, na realidade, o que possa já fazer-nos estremecer, vibrar ou commover. Dentro em poucos mezes, encontrar-se-hão aqui reunidos representantes de todos os parlamentos do mundo, as mais altas personalidades da politica, da sciencia, das letras, das artes, que nos honrarão com a sua visita e com a sua solidariedade, n'esta hora sombria em que a patria decahida mais carece do confôrto alheio e da sympathia estrangeira. Não sei que haja alguem capaz de desconhecer tão relevante serviço, a não ser por mesquinheria soez ou por perversidade requintada.

Os congressos representam para nós mais alguma cousa do que uma simples reunião de sabios: representam ou devem representar, pelo menos, a nossa participação definitiva na grande obra da sciencia e da democracia moderna. Tão alheios temos andado com a nossa politica de campanario, que bem se póde dizer que as ideias humanitarias não lograram ainda atravessar ou transpôr a fronteira. Os congressos pódem trazer-nos essa suprema vantagem de nos aproximar dos nobres e generosos ideaes que purificam e regeneram as nações, afastando-nos cada vez mais da vileza e da intriga em que se debate a sociedade portugueza.

E' certo que muitos se apavoram ainda deante do internacionalismo, assim como outros se acobardam deante das manifestações populares. Assim como os individuos não pódem viver fóra da sociedade, assim as nações não pódem viver isoladas. O individuo encontra na associação a sua força; as nações encontram nas allianças offensivas e defensivas uma garantia de paz e de independencia. O internacionalismo introduziu-se nos costumes dos povos, e já não haverá Cesar, por mais poderoso que seja, capaz de o desthronar e de o desalojar. O patriotismo só é grande e acceitavel, quando tem por objectivo uma obra humana.

O applauso e o apoio que a celebração do centenario encontrou no estrangeiro são verdadeiramente extraordinarios e começam já a evidenciar-se por factos que nos devem ser, em extremo, agradaveis. As *Sociedades de Geographia* de Londres, de Berlim, de Stockholmo, de Bruxellas e de Paris preparam-se para solemnisar o extraordinario acontecimento com um fervôr que muito as honra e enaltece. A *Sociedade de Vienna* que, no anno proximo, festeja o jubileu do seu imperador, celebrou a partida de Vasco da Gama, no dia 8 de Julho proximo preterito, com duas conferencias, ambas dignas eloquentes periodos que muito devem lisongear o nosso amor proprio:

«E' justo que, na occasião das festas commemorativas em honra de Vasco da Gama, a Europa se associe a Portugal para celebrar com elle o seu illustre antepassado. Devemos suppôr que os governos não serão os unicos a fazerem-se representar n'esta cerimonia. As sociedades de geographia, as associações coloniaes e commerciaes, as companhias maritimas, etc., devem constituir-se no dever de enviar tambem delegados a Lisboa, por isso que, n'esta hora, a Europa tem a saldar duas dividas, egualmente sagradas, a primeira para com Vasco da Gama cujo genio e cuja valentia tanto aproveitaram ao mundo e a segunda para com Portugal que foi o architecto incomparavel de um imperio colonial que outros edificaram.»

N'esta substanciosa dissertação ha um ponto, não a rectificar senão a esclarecer. Diz o conferente:

«Seria um erro acreditar que, se Vasco da Gama descobriu o caminho das Indias pelo Cabo, foi, ao mesmo tempo, o descobridor da India. Não! As Indias eram já conhecidas ha 200 annos, posto que o fossem de uma maneira muito vaga.

«No fim do 13.º seculo, um homem que póde ser considerado como o maior explorador da Edade Média, Marco Polo, de Veneza, havia atravessado toda a Asia. Partindo da sua cidade natal, atravessou successivamente a Armenia, a Persia e a China, e, no regresso, navegou, á aventura, durante dezoito mezes, no mar das Indias, permanecendo cinco mezes em Java, a menor, Java, a pequena, quer dizer em Sumatra. Voltando á Europa, escreveu a narrativa das suas viagens e o seu manuscripto foi copiado n'uma quarentena de exemplares, de maneira que o nosso continente possuia já um certo numero de noções — e não das menos interessantes — sobre o grande continente asiatico e sobre os mares que o banham ao sul.»

E' certo que a India já era conhecida, mas de uma maneira vaga, como assevera o proprio conferente. Era o paiz da lenda, da phantasia e do mysterio, o paiz fabuloso, o paiz dos perfumes, das madeiras preciosas e dos tecidos maravilhosos. Mas foi Gama, quem desvendou ao Occidente a terra do sonho pela energia e pela coragem indomavel de uma nação, «cuja patria era apenas visivel no mappa do mundo», na phrase de Jules Verne na sua *Historia dos Grandes Navegadores.* E, como tão judiciosamente affirma o sr. Armand Rainaut: «Se Vasco teve precursores e antecessores no mar das Indias, não quer isso dizer que elle não fosse tambem um precursor. Foram as suas duas primeiras viagens á India que abriram ao mundo o accesso dos archipelagos e das terras do Extremo Oriente».

Como resultado ainda d'este movimento patriotico e redemptor, acaba o sr. Georges Delvaux, membro da *Sociedade de Geographia Belga,* de publicar um volume, intitulado *Vasco da Gama e as descobertas maritimas dos portuguezes,* que, por mais de um titulo, se recommenda á nossa attenção e ao nosso reconhecimento. O primeiro capitulo abre pelas seguintes palavras, perfeitamente em harmonia com o que acabamos de expôr:

«A celebração do 4.º centenario da descoberta do caminho das Indias por Vasco da Gama não deve ser considerada como a commemoração de um acontecimento puramente nacional, mas, sim, como o justo tributo de reconhecimento do mundo inteiro, destinado a rememorar as brilhantes explorações dos navegadores portuguezes que representaram um dos mais bellos papeis na historia commercial do mundo.

«Vasco da Gama, á memoria do qual o governo portuguez e a *Sociedade de Geographia de Lisboa,* consagram festas commemorando o 4.º centenario da descoberta do caminho da India, foi, sem contradicção, uma das maiores glorias maritimas do XV e XVI seculo. O seu logar é ao lado de Colombo e de Magalhães.

«As descobertas do Gama, a sua viagem aventurosa no oceano indico, que nenhuma outra esquadra havia sulcado antes d'elle, coroaram dignamente, no fim do XV seculo, os esforços continuos feitos pelos portuguezes para assegurarem o monopolio do commercio com as Indias. Era como que uma apotheose das primeiras explorações emprehendidas pela iniciativa do infante D. Henrique, ao mesmo tempo que eram da mais alta importancia para a humanidade inteira. A viagem do Gama forneceu a Camões o seu poema para sempre immortal — *Os Lusiadas*.

«As consequencias da descoberta do novo caminho da India foram enormes para o commercio maritimo, que, desde essa época, passou das mãos dos arabes e dos seus alliados, os venezianos, para a mão dos portuguezes. Lisboa supplantava a rainha do Adriatico e tornava-se o emporio do commercio do mundo.

«A historia da navegação moderna e as transacções com o Extremo Oriente estavam definitivamente inauguradas.»

O author occupa-se depois de Vasco da Gama, do seu nascimento em Sines, no anno de 1469, dos navios que compunham a sua esquadra — *S. Gabriel*, navio almirante, *S. Raphael*, onde embarcára seu irmão Paulo da Gama, o *Berrio*, e mais um transporte de provisões que teve de ser destruido no curso da viagem; conta como as fadigas, as privações e as doenças, entre outras o escorbuto, haviam aniquilado e destroçado uma parte das equipagens, e como Vasco se viu forçado a inutilisar o navio *S. Raphael*, commandado por seu irmão que morreu nos Açores, ao regressar. Gama assistiu aos ultimos momentos do mallogrado capitão, cujo concurso havia sido precioso para a expedição e de quem, no dizer de Ferdinand Denis, os historiadores esqueceram, por vezes, a *abnegação tocante*.

Abro aqui um parenthese. A morte de Paulo Gama impressionou profundamente os açorianos, como todos os povos inclinados ao maravilhoso, e d'ella derivou uma lenda, em virtude da qual alguns o consideraram a verdadeira alma da expedição. Todos os authores estrangeiros são, porém, de accôrdo em attribuir unicamente a Vasco, *como homem eminentemente pratico*, no juizo de Denis, de Charton e de Morelet, toda a gloria da arrojada empreza.

Levar-nos-hiam longe as citações. Accrescentemos que na America e na Africa do Sul lavra grande enthusiasm pela ideia do centenario. Não fallo do Brazil, onde, como sabem, os nossos compatriotas, dando-nos mais uma vez uma altissima prova do seu inexcedivel amor pela terra natal, pensam em offertar a Portugal um couraçado que se denominará *Patria*.

No Canadá o sr. E. G. Ravenstein dirigiu uma communicação á *British Association*, na sua ultima reunião, em Toronto, ácerca das descobertas dos portuguezes e do mappa de Martinho de Bohemia, e está escrevendo uma memoria sôbre Vasco da Gama e a descoberta da India.

Na publicação *South Africa* depara-se-nos um artigo do sr. Irons, empenhado em levantar um monumento que atteste a passagem de Vasco da Gama pelo sólo africano e em que diz: «Foi a heroica coragem do Gama, a sua perseverança, e o seu genio que redimiram da barbarie a Africa do Sul e a converteram n'um manancial de riqueza, de confôrto e de prosperidade».

Na minha visita a Antuerpia, tive occasião de visitar o *Belgica*, um barco feito nos moldes do navio com que Nansen se arrojou ao pólo norte, e que, por seu turno, devia tambem partir em exploração para o pólo sul. Que serenidade, que confiança e que tranquillidade a d'aquelles sete homens, a d'aquelles sete bravos exploradores, a d'aquelles heroes, dispostos a arriscarem a vida pelo amor da sciencia e da humanidade! Sabendo que eu era portuguez, um d'elles disse-me:

«Partimos com a fé de Vasco da Gama, e, na sua memoria, encontraremos incentivo a todas as ousadias e a todos os commettimentos.»

Estas nobres palavras podem e devem servir-nos de lição e de ensinamento, na hora angustiosa que atravessamos. A descoberta da India realisa para mim o ideal que todo o portuguez devia ainda hoje possuir — o sonho e a acção: o sonho, symbolisado no infante D. Henrique, e a acção consubstanciada em Vasco da Gama.

Superior aos arabes e aos phenicios, na antiguidade, e aos genovezes e aos venezianos, na edade média, Portugal que fez obedecer á sua voz Marte e Neptuno, no dizer de Camões, encheu o mundo com as suas façanhas. Abrindo a Africa á civilisação e á sciencia, foi ainda o seu systema de colonisação o seguido por todos os outros paizes. O seu poder foi immenso; e, a despeito das amputações — dizia o sr. Levy na sua conferencia de Vienna, que a Inglaterra e a Allemanha, em menospreso do seu direito historico, fizeram soffrer ao seu dominio, elle affirma-se e affirmar-se-ha sempre por um total de colonias que medem 2.200:000 kilometros quadrados com uma população de 15.000:000 de habitantes.

Um traço ainda para concluir. O testemunho é tambem de um estrangeiro, porque é esse o meu objectivo — fazer vêr com que interesse o estrangeiro se associa á nossa celebração e como a comprehende.

Diz o sr. Delvaux:

«Com a subida ao throno de D. João III, a situação do imperio colonial portuguez principiava a mudar. A Lisboa chegavam vivas queixas sobre o vice-rei Eduardo de Menezes e o seu sequito. Foi então que Vasco foi designado para o substituir.

«Partiu de Lisboa, com o titulo de vice-rei, a 9 de abril de 1524, acompanhado por Pedro Mascarenhas, Henrique Menezes e Lopes Sampaio. Numerosos navios, tripulados por 3:000 homens, acompanhavam Gama. Seus dois filhos, Paulo e Estevam Gama, tambem embarcaram. Era a sua terceira partida e a patria não voltaria a vêl-o.

«Toda a gente conhece as memoraveis palavras que pronunciou, á vista da India, quando, pela terceira vez, a visitava. A' medida que os navios se aproximavam das costas da India, diz a mór parte dos historiadores, uma grande agitação desusada manifestou-se no seio das aguas. O mar cresceu, sem que nada podesse indicar a tempestade; choques violentos abalaram os navios, succedendo-se um grito de terror; ninguem havia reconhecido um tremor de terra submarino.

«Vasco da Gama conservou a sua serenidade habitual, em meio do sinistro presagio. «Que receio podemos ter? —

Estava aqui o homem. Estava aqui o heroe! Ou antes, está aqui a psychologia do homem e do heroe.

Effectivamente, só pela grandeza do oceano e pelo choque dos elementos, se podia aquilatar o seu vulto gigante. Clarão radioso e divino, luz vivissima, elle enche, inunda e illumina a nossa historia atravez os seculos!

Vasco da Gama, em pé, de braços crusados, sobre o tombadilho do seu navio, sorrindo desdenhosamente do perigo e encarando serenamente a morte... Que bella inspiração para um poeta! e que magnifico assumpto para um artista genial!

E dizem que não estamos em condições de convidar estrangeiros. Mas basta-nos a nossa historia, para que o possamos e para que o devamos fazer. Somos e representamos uma tradição que a todos merece o maior respeito e a maior sympathia. Com o centenario affirmamos que estamos dispostos a continuar a nossa historia e as nossas tradições. E, quando não fosse se não esta a sua significação, já era, a meu vêr, um grande e um meritissimo titulo de gloria para o nosso paiz.

Um povo que assim procede é, pelo menos, um povo honrado e coherente.

Pois não será imponente assistir a uma revista naval em que tremularão as bandeiras de todos os paizes e que vem engrandecer ainda mais, se é possivel, o nosso Tejo, theatro unico para um espectaculo semelhante, e accrescentar-lhe novos attractivos?

Porventura não despertará o interesse dos forasteiros uma exposição de typos, das industrias, e dos costumes portuguezes — indus, vatuas, buchmen, congos, etc — que, á semelhança do museu do norte de Stockholmo, darão uma ideia completa do paiz, e que, pelos exemplares vivos das nossas colonias, somos a unica nação capaz de a fazer com vantagem e com brilhantismo? E não será, por todos os motivos, curiosa e interessante, como festa maritima, uma regata internacional, feita com o concurso de europeus e americanos?

Não! meus Senhores, não ha motivo para desanimos, nem para duvidas, nem para hesitações. O que se torna indispenvel é estabelecer uma trégua ás mesquinhas paixões pessoaes, invejas e de malquerenças em que se dissolve a sociedade portugueza. O que se torna preciso é reduzir cada um á sua esphera de acção. O que se torna necessario, finalmente, e urgente é que, como portuguezes, procedamos, e como portuguezes nos apresentemos deante do estrangeiro, pondo de parte rivalidades e retaliações inuteis. Qualquer divisão da familia portugueza, no actual momento historico, seria um crime de lesa-patria.

Por ultimo, meus senhores, permittam-me que d'aqui dirija um agradecimento caloroso á direcção da *Sociedade de Geographia*, ao seu digno e honrado presidente, o conselheiro Ferreira do Amaral, ao meu illustre e affectuoso amigo Rodrigues da Costa, pelas palavras tão amaveis, tão lisongeiras e tão immerecidas que me dirigiu, á commissão do centenario da India, e, em particular, ao meu velho e querido e dilecto amigo Luciano Cordeiro, alma d'esta associação — que me foi auxiliar valiosissimo na cruzada que emprehendi — por terem dotado a cidade de Lisboa e enriquecido o paiz com este verdadeiro monumento, destinado a attestar a vindouros a sua iniciativa nobilissima, e a sua fé inabalavel no futuro e nos destinos da patria.

E faço-o com tanto mais prazer e com tanta maior satisfação, quanto é certo que a *Sociedade de Geographia* entra hoje no 23.º anno da sua existencia. Representa *tudo isto* vinte e dois annos de trabalho perseverante, de esforço herculeo e de dedicação patriotica que o futuro ha de apreciar devidamente. Os serviços prestados pela Sociedade á civilisação africana, não se enumeram: agradecem-se com as lagrimas do reconhecimento e com a effusão que deriva dos beneficios recebidos.

O sr. Pullan, redactor do *Daily News*, a quem tive ultimamente o prazer de acompanhar na sua visita a esta sociedade, afiançou-me que, em Londres, a terra das cousas colossaes e magnificentes, não havia nada que se lhe podesse comparar. N'este vasto e grandioso recinto, a primeira obra do centenario, receberemos o estrangeiro com orgulho, com confiança e com desvanecimento.

Uma cousa nos distanceia effectivamente de Vasco da Gama e dos seus audazes companheiros — é a fé que elles possuiam e que a nossa geração, infelizmente, não possue.

E é a esta falta de fé que devemos attribuir todos os nossos males e todos os nossos desastres. Um povo que não tem fé é um povo morto. Mais uma razão para felicitar a *Sociedade de Geographia* pelo seu brilhante emprehendimento que constitue hoje, incontestavelmente, uma gloria nacional.

Uma digressão ainda, se m'o permittem.

Por occasião da guerra de Melilla, passava eu casualmente em Ceuta, onde me encontrei com um mouro intelligente e enthusiasta. Fallando com exaltação contra os hespanhoes, disse-me, ao cabo de longas reflexões:

«Não, meu senhor, elles não poderão nunca vencer, porque não teem, dentro do peito, como nós, a fé e a crença n'um Deus supremo. Nós marchamos de cabeça erguida, para o campo de batalha, e, se cahimos varados pela metralha inimiga, abençoamos a bala que nos matou, porque morremos pelo nosso Deus e cumprimos o nosso dever».

Consinta a assembléa que eu lhe recorde as palavras memoraveis do ardente marroquino. Tenhamos fé no progresso, tenhamos fé na humanidade, e cumpramos o nosso dever. A fé abala montanhas e o dever torna-nos cidadãos. O centenario de Camões marcou, para o paiz, uma nova era de rejuvenescimento nacional. Porque não hade o centenario da India continuar e completar a obra tão gloriosamente encetada?

E' esse o meu unico desejo e deve de ser esse o desejo de todos aquelles que antepõem os interesses nacionaes ao seu egoismo, á sua vaidade e ás suas conveniencias.

Hoje os caminhos de ferro atravessam os paizes e os mares são sulcados em todas as direcções! Não succedia o mesmo ha quatro seculos, em que a Europa vivia para assim o dizer, vergada sobre si mesmo, concentrada e isolada, ignorando o que se passava fóra ou além d'ella Esses tempos foram difficeis.

E, se navegadores intrepidos não tivessem arriscado a sua vida para bem servir a humanidade, o progresso e a fraternidade dos povos nunca teriam passado de uma palavra vã.

E' em nome e como reconhecimento a esse supremo esforço; é em nome e como reconhecimento a essa heroicidade; é em nome e como reconhecimento a essa valentia sem egual: é em nome do sacrificio, da honra e do dever, que eu vos convido a collaborar comnosco na celebração do centenario, mostrando ao estrangeiro que não só comprehendemos a grande obra inegualavel de Vasco da Gama, senão tambem que somos dignos d'ella.

## Lista dos membros do comité francez

E

## Lista dos membros do comité portuguez em Paris

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# THE STATE OF NICARAGUA

OF THE

GREATER REPUBLIC

OF

# CENTRAL AMERICA

BY

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CHIEF OF THE SCIENTIFIC DEPARTMENT OF THE PHILADELPHIA MUSEUMS

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# The State of Nicaragua.

## I.

### TOPOGRAPHY, GEOLOGY AND MINERAL WEALTH.

Nicaragua lies between 10° 45′ and 15° 10′ north latitude, and between 43° 11′ and 87° 38′ west longitude from Greenwich. This territory forms a regular triangle, with about 123,950 sq. km., or 40,000 sq. miles of surface. The Atlantic coast line is 707 km. (or 442 miles) and the Pacific coast line 418 km. (or 261 miles) in length. For navigation purposes, however, there are only 539 km. (or 337 miles) in the Atlantic Ocean and 335 (or 209 miles) in the Pacific. The boundary line between it and Costa Rica runs along the San Juan River as far as San Carlos, thence, but two miles distant along the river course and around the southern shore of Nicaragua Lake to the Rio Sapoa, and from there to the Bay of Salinas. Honduras lies on the north. Nicaragua possesses a few islands in the Caribbean Sea and two small ones in the Pacific.

Topographically Nicaragua is composed of the terrace-lands of the north, of the low plains of the lakes with a distinct line of volcanoes, and of the mountain-lands of Managua, Granada and Rivas between the lakes and the Pacific Ocean. Seen from the Pacific, Nicaragua presents four distincts lines, namely: the low coast, the mountain-ridge rising between that coast and the lakes, which is also the water-shed between the

Pacific and Atlantic Oceans, the line of volcanoes, and the Cordilleras los Andes in the distant east.

This description follows, for the most part, the manuscript of Dr. Bruno Mierisch, a thoroughly educated scientist, whose opinions are based on closely observed facts of extensive travel in Nicaragua for geological and mineralogical purposes.

The terrace-lands of the north occupy about two-thirds of Nicaragua. Towards the low plains of the lakes they end abruptly, and their escarped face appears as a great mountain wall with deep valleys cut through it. Towards the north they shade off gradually into the mountains and plateaux of Honduras. Towards the east they slope gently down to the Atlantic coast, with a number of spurs lying between the rivers.

These highlands are here simply the continuations of the great Central-American Andes plateau, from which in Nicaragua in an earlier epoch a broad strip broke and went down into the Pacific depths. The first step of the terrace-lands is in the south—a broad strip of "llanos" about a thousand feet above the level of the sea; in the west are the "llanos" of San Lorenzo, then the plains of San Isidro, Sébaco, Calabazo, etc.; in the east are the highlands of Chontales. They do not form a single plain, but are crossed here and there by low ridges and hills, which separate them into a number of districts. The southern limit of these lands is a low wall sloping abruptly toward the low plains of the lakes, and forming the so-called mountains of Chontales, Matagalpa and Nueva Segovia, with an average height of 1,500 feet above the sea, only surpassed by a few separate mountains, like the mountain of Guisisil, whose summit reaches 4,000 feet.

Toward the north of these first terraces there are similar dividing mountain-walls by which ascent is made to the higher terraces. These mountain-ridges also rise abruptly, but considerably higher from the "llanos" than the others do from the lake plains. In Chontales they run parallel to the southern line from El Castillo Viejo to La Libertad. Here they take a northwest direction until they cross the Rio Grande near the mouth of Olama, thence they go west between Matagalpa and Jinotega, where they divide, one branch going westward to Esteli, Pueblo Nuevo and Somoto Grande, while the other trends northward toward Pantasma, following the Coco River to its junction with the Bodega and finally making its way to Jalapa and Honduras.

Between these two branches lie the "llanos" of Jinotega, Esteli and Ocotal, having an average height of 3,000 feet. Toward Honduras, as already stated, these plateaux mingle with the highlands of that country. Toward the Atlantic Ocean these mountain-ridges, called Cordilleras de los Andes, and sometimes attaining a height from 4,000 to 6,000 feet, descend gradually, forming secondary systems of ridges or spurs which are the water-sheds between rivers. Such water-sheds are to be found between the Tooma and Matagalpa Rivers, between the Tooma and Coco, between the Rio Grande and the Mico or Bluefields, and between this and the Rama Inferior.

The ridge between the Tooma and Coco Rivers is an important mountain system called Pis-Pis, having an altitude of about 1,000 feet above the sea, and recently known for the gold found there.

From this point the following rivers take their origin and flow in different directions, with lower water-sheds between, namely the Bocay flowing toward the northwest, the Rio Vaspure towards north-northeast, the Rio Cuculaia easterly, and the Prinzapolca with the Banbana to the southeast.

On these secondary ridges, which separate from the Andes chain like ribs, there are mountains of tertiary volcanic origin, as, for instance, the Cerro de Trapiche and Cerro de Musun (of andesite formation), in Matagalpa; and the mountains of Salai and Hiyas (of andesite and basalt), in Prinzapolca. Some mountains, as the Peña Blanca in the northeast of Jinotega, are also apparently of recent volcanic origin. All the eastern mountains descend gently to the Atlantic coast. A few chains of hills reach this ocean shore, like the Punta Mico or Monkey Point, which forms an excellent seaport about 60 or 70 miles north of the proposed entrance of the Nicaragua Canal.

As the lowlands of the Atlantic coast form a considerable margin, all the great rivers are navigable by steamers for a long distance, as the Rama or Bluefields, with a course of 220 miles, as far as Rama; the Rio Grande, with a course of 280 miles, beyond the boundary of the Department of Zelaya; the Prinzapolca as far as Yoya; the Cuculaia as far as Ungui; the Waua River as far as Saw Mill; and the Coco River, with a course of 350 miles, as far as Quisalala. However, the rivers along the Atlantic coast silt up badly and form bars at their mouths. The mouth of the Coco has sometimes no more than three feet of water on the bar, those of the Waua and of the Rio Grande six feet, and that of the Bluefields twelve feet. Another obstacle to continuous navigation in some rivers is the enormous fluctuation in the volume of their waters, corresponding to the rainfalls and to the seasons.

The low plains of the lakes, the second great topographical division of Nicaragua, spread like a broad tongue between the Cordilleras and the Pacific coast range, and include the eastern shore of the great lakes with a continuation down the San Juan River to the Atlantic Ocean. They are nearly flat with deep river valleys, and are separated into two parts by a line of volcanoes. This remarkable line of separate volcanoes may have had its origin in the breaking, in its entire length and about its central portion, of the immense falling mass of land which was formerly a part of the Central American Andes plateau, and in opening to volcanic energy a way to the surface for tremendous eruptions.

This line of volcanoes commences in the Gulf of Fonseca, which is a continuation of this remarkable region. It comprises the Coseguina, rising 3,835 feet above the sea, and which in 1835 made an eruption covering with volcanic dust an area of 1,500 miles, reaching as far as the Island of Jamaica; the Chonco and the Viejo (6,266 feet high), which are in the Department of Chinandega; the Santa Clara, Telica (4,190 feet), Orota (2,685 feet) and Las Pilas (3,985 feet), all in the Department of Leon; Asososca, Momotombo (6,121 feet), in the Department of Managua, and active in 1852; Momotombito and Masaya (2,972 feet), which was built up anew about a century ago, and underwent a large eruption in 1858, in the Department of Masaya; Mombacho (4,588 feet), Zapatera (2,000 feet), in the Department of Granada; the Ometepe (5,350 feet), which, in 1883, with a prolonged eruption of ashes and alkaline salts, drove the inhabitants of Moyogalpa from their homes; and the Madera (4,190 feet), which, with Ometepe, forms an island in the great lake, and is in the Department of Rivas.

In the opinion of Dr. Mierisch and others, the lakes of Asososca, Nejapa, Tiscapa and Apoyo were once volcanoes. The lavas, ashes and lapilli thrown out by the volcanoes filled the great ocean bay, leaving two large flat basins to receive the waters of the Lakes Managua and Nicaragua.

Toward the Pacific coast the volcanic energy was so great as to form a high rampant, which compelled the waters of these basins to find an outlet through the San Juan River to the Atlantic Ocean. The entire plains of the lake region are covered with the products of this volcanic activity. Their horizontal deposit is homogeneous and over 300 feet deep, which means as high above the sea-level as Leon. This fact proves that the entire lake region might have been, although but for a short time, an ocean bay. The decomposition of these varied volcanic deposits yields a dark sand and magnetic iron.

On this erupted mass lives the larger part of the population of Nicaragua. Here are situated most of the important villages, towns and cities. As all this volcanic matter is porous, surface water speedily disappears but there are springs which spring from water retained in lava beds. There are no perennially flowing rivers on the side that faces the lakes of Managua and Granada.

The great lake of Nicaragua, about 110 miles long and 40 miles in average width, covers about 2,600 square miles, and has a drainage basin of over 8,000 miles. Besides the Ometepe and Zapatera there are in the lake a number of smaller islands, of which the Solentiname group is the most remarkable. Besides the Rio Frio from Costa Rica, and the Tipitapa from the lake of Managua, only small rivers enter the great lake.

The lake of Managua is about 24 feet above the great lake, and is about 30 miles long and 16 miles wide. Its most important tributary is the Rio Viejo. There are also these smaller lakes: Jilua, in the Chiltepe peninsula; the Tigre, near the volcano of Asososca; and Mogotepe, near the volcano of Viejo.

The third great topographical division in Nicaragua, comprising the mountains of Managua, Granada and Rivas, commences in the Sierra de Managua, separated from the Andes by the lowlands of the Estero Real. The first range begins southwest from Leon in the form of a low long ridge, which increases in height as it runs southeasterly until high mountains appear. The general direction of the Sierra de Managua is from northwest to southeast. It descends to the lake region abruptly, but toward the Pacific it slopes slowly down. Near Diriamba this mountain chain reaches a height of 3,000 feet, but it descends from there to Rivas in such a way that near the latter place it is only 152 feet. There it begins again to rise gradually, passing over into the high mountains of Costa Rica.

The character of this range is similar to that of the terraces of the Andes. It is, perhaps, more a tableland with an abrupt descent to the interior, as it is a real mountain chain. Its character is best displayed in the highlands of Jinotepe. Its base is mostly covered with ashes and lapilli from the volcanoes, brought here in part by the southwest tradewinds. Toward the interior this erupted mass is so deep that in no place, not even in artesian wells, has its peculiar geological formation been studied.

It is different on the Pacific side where the scoriæ and ashes are less deep, and where, in some places, the erosion of rivers and creeks has brought to light the geological formation. There these mountains are mostly composed of sedimentary rocks, which goes to prove them to be the end of the Andes tableland. The rocks are chiefly a white or gray limestone containing shells. Besides there are clay slates, tufas of melaphyre and of older basalt and andesite, as well as masses of these last two rocks, which are found in the Andes, and they correspond very well to the formations of the northern terrace lands. Toward the lake no constant rivers flow, since the water is absorbed by the scoriæ and ashes, as it is in the plains of the lake. There are a large number, however, of creeks and streams on the Pacific side, debouching generally in swamps and in mangrove growths.

The Pacific coast lands are low. The water is deep close to the shore, and neither shoals nor reefs make navigation dangerous. But there is a constant heavy surf, called Tasco, caused by the swell of the Pacific Ocean.

There is between the Gulf of Fonseca and the Pacific the peninsula that contains the volcano of Coseguina. Half way between the Punta of Coseguina and the Bay of Salinas the Cape of Desolado is found. Northwest of this cape is the harbor of Corinto, one of the best protected harbors on the Pacific coast, very capacious, but partly overgrown with mangrove trees. Southwest of it lies the port of San Juan del Sur, a small but deep and safe harbor, as also the Bay of Salinas, forming a nearly circular, beautiful, deep and extensive port.

As for the mineralogical wealth of the district between the lakes and the Pacific, it is important to state that there is found excellent magnetic iron ore, with 48⅔ per cent. pure iron. On the lake plains some lime occurs near Tipitapa, the volcano of Las Pilas and near Chinandega. Thermal springs are found on the Momotombo and sulphur springs near Tipitapa. Alkaline waters exist in the lagoons of Nejapa, Apoyo and Jilua.

The terrace lands of the interior of Nicaragua have a skeleton of red porphyry and melaphyre with corresponding tufas. The mountains and hills traversing the highlands are generally lava, while the llanos are filled with tufas. These tufas of varying colors are abundant and generally full of large pieces of volcanic rocks, a fact which indicates the tremendous activity of the volcanoes in former epochs. Volcanoes must have been very numerous in nearly the entire continent, although to-day, after the lapse of millions of years, no traces of them are found. This central portion of porphyry and melaphyre has on its east and west borders sedimentary rocks. In the east there is a large strip, running from west to south, of silurian clayish and sericitic slates, of limestones, as well as of triassic sandstones and clays, and of tertiary and also diluvial and alluvial formations. In the west there are apparently no older slates, but there are sandstones and limestones of younger formation.

Along the first terrace and toward the lakes, in the abrupt slopes of the bounding wall, the prophyry is largely crossed by veins of quartz containing gold, especially where basalts and andesites of the tertiary epoch have broken through. Gold ores and gold dust have also been found in Nueva Segovia, Prinzapolca, Matagalpa and Jinotega. In these departments also other ores, such as silver, lead, copper, etc., have been discovered.

The following is a short list of the principal mining districts:

1. **Chontales** (especially around La Libertad):

San Juan de la Caridad,
Los Angeles,
El Portillo,
El Tope,
El Javali,
Santa Fé,
Babilonia,
La California and Concepcion,
Santa Elena,
El Despacho,
Santo Domingo,
San Miguel,
El Carmen,
El Escándalo,
La Esmeralda,
El Chamorro,
San Gregorio.

**Boaco:**

Benjamin Quiroz, Manuel Saballos.

2. **Matagalpa:**

San Benito (A. Wassmer),
Esmeralda (Pinedo & Mairena),
San Pablo (Alonzo & Chaves),
El Potente (Luis N. Arrieta),
Cabezal de San Juan,
San Antonio (R. Valenzuela),
Santa Rita (N. Grijalva),
La Restitucion (Alejandro Cerna),
Las Perlas de Oro (F. Ruiz),
San José del Zapote (J. L. Vega),
Maire Espino (Benito Espinoza),
Santa Cruz (R. Valenzuela),
Santa Maria (Alonzo),
La Esperanza (Matus & Mairena),
El Consuelo (Molinares & Miranda),
Buena Vista (Metrailler & Gallardo),
La America (Mayorga & Montenegro),
Las Gemelas (Gen. F. Ruiz),
La Ninfa (David Caldera),
Rosita (Fulgencio Mayorga),
El Porvenir (R. Valenzuela),
La Tijera (Blandon & Molinares),
La Fortuna (Ruiz & Lopez),
San José (Barrantes & Castillo),
Maryland (Rodrigues & Rico),
Santa Brigida (Nicolas Grijalva),
La Sultana (Alonzo, Chaves & Herrera),
Esmeralda (Pinedo & Mairena),
Centro America (T. G. Bonilla),
La Leonesa (Alonzo & Chaves),
El Baluarte,
La Ciudad,
San José (Duarte & Castillo),
Delfina (D. Caldera),
La Envidia (C. Cantarero),
Cabezal de la Trinidad (Camilo Caldera),
Apantillo (Josefa Mairena),
Las Mercedes (J. Guerrero),
Gemela (Benito Espinoza),
La Leonesa etc. (Amer. Company),
Naranjo (Carlos Packer).

## 3. Nueva Segovia:

**Totogalpa:**

Castillo & Co.,
Felber & Co.,
Muños & Gutierrez,
Felix Muñoz,
Henry Chaplin,
Antonio Lozano.

**Telpaneca:**

Erasmo Calderon.
Cayetano Castellon,
Tomas Duarte,
Barrantes.

**Jicaro:**

Randales,
Montoya Hermanos.

**El Golfo:**

The Segovia Mining Co. with the following mines:
SAN ANTONIO,
Esperanza,
Progreso,
Providencia,
America Central,
Virgen,
CONSUELO,
La Fortuna,
El Socorro,
SAN JUAN,
Eureka,
Excelsior,
Alhambra,
Welcome.

**Quilali:**

Medina y Soto.

**Encinos:**

Gamero & Moneada.

**Mineral de Murra:**

Talbot & Co.,
Velazquez & Gamero,
Luis Palma.

## 4. Cabo de Gracias á Dios:

La Constancia, Siempre Viva, Atlas Groups, Hidden Treasure.

## II.

## CLIMATE AND METEOROLOGY.

The climate of Nicaragua is determined by its position in the tropics, by the proximity of two great oceans, which gives to the country the regular temperature of an island, and by its topography. The prevailing wind is northeast. In the time of the solstice the direction of the wind changes to southwest, but variable winds without determined influence mostly blow at the time of the equinoxes. The moon also has some effect on the weather. It is generally during passing from one quarter to another, when notable modifications can be observed.

There are two well marked seasons; a dry season called summer, and a wet season called winter, along the Pacific coast, in the lake region and still further inland along the Cordilleras de los Andes. On the Atlantic side of the Cordilleras the rainfall does not entirely cease at any season, and the country there has the character of perpetual spring, although its people also distinguish between a summer and a winter. There the summer begins in January and ends at the end of May. The prevailing northeast wind coming from the Atlantic is full of moisture, which, on its passage over the forests that cover nearly the whole Atlantic slope, is condensed and falls repeatedly but irregularly in showers.

During the rest of the year the rain falls heavily, only temporarily interrupted in August and October, which short and relatively dry seasons the people call "veranillos."

On the Pacific side the rainy season, or winter, begins generally about the middle of May and ends at the middle of November. Here, too, but generally in the month of August, one, or more, veranillo is observed. The hottest months in general are May and August, when the sun is in the zenith, but sometimes they occur later. The rainy season is the pleasanter, for then the temperature is most uniform and the sky full of clouds.

As rainfall and temperature vary according to locality, the following interesting types are given. The first is taken from the very complete observations of Dr. Ernest Rothschuh made at the hacienda "Rosa de Jericho" in Matagalpa in the high mountain region of Nicaragua, over 3,300 feet above the sea, which shows a sort of climate differing from those already described. Dr. Rothschuh's manuscript, presented to the Nicaragua Government, discloses that during the period of his observations, from January, 1893, to March, 1894, there were rainfalls every month:

**In 1893:**

| | | | | | |
|---|---|---|---|---|---|
| January | 17 days. | May | 24 days. | September | 30 days. |
| February | 17 " | June | 29 " | October | 28 " |
| March | 10 " | July | 31 " | November | 20 " |
| April | 9 " | August | 27 " | December | 21 " |

**In 1894:**

| | | | | | |
|---|---|---|---|---|---|
| January | 30 days. | February | 20 days. | March | 18 days. |

There were heavy tropical rainfalls (aguaceros) five times in January, 1893, once in March, once in April, twice in May, once in June, six times in July, once in August, once in September, ten times in October, twice in November, twice in December, six times in January, 1894, five times in February, once in March. Thunder storms were only observed from September to December inclusive; namely, sixteen times in September, ten times in October, twice in November, once in December. They occurred during the afternoon or night time. The rain fell generally during the afternoon, sometimes also during the night, seldom all day long. In the morning there were fogs during 295 days until 8, 9, 10 and 11 o'clock. Generally during the forenoon the sky was clouded and very frequently with cumuli. The barometer showed the usual daily variations, but very small oscillations between one day and another. The air was nearly constantly saturated with humidity, 82.37 to 100 per cent. In regard to the prevailing winds there was northeast wind in January, 1893, for 30 days; in February for 28 days; in April for 30 days; in May for 16 days; in June for 27 days; in July for 27 days; in August for 20 days; in September for 22 days; in October for 31 days; in November for 27 days; in December for 31 days; in January, 1894, for 31 days; in February for 28 days; in March for 31 days. There were southwest winds 1 day in January, 1893; 8 days in May; 2 days in June; 3 days in July; 6 days in August; 7 days in September; 2 days in November. Lightning in the far distance was nearly exclusively observed in September (during 10 days) and October (during 13 days).

The maximum temperature was in January, 1893, 28.3 degrees C.; in February 30 degrees; in March 30.1 degrees; in April 32.3 degrees; in May 28.1 degrees; in June 27 degrees; in July 24.4 degrees; in August 28.6 degrees; in September 25.5 degrees; in October 25.2 degrees; in November 23.8 degrees; in December 21.9 degrees; in January, 1894, 20 degrees; in February 20.1 degrees; in March 21 degrees.

The minimum temperature was in January, 1893, 15 degrees C.; in February 17 degrees; in March 14.6 degrees; in April 17.2 degrees; in May 15 degrees; in June 15.5 degrees; in July 15 degrees; in August 15 degrees; in September 15.4 degrees; in October 14.3 degrees; in November 13.6 degrees; in December 11.2; in January, 1894, 12.8 degrees; in February 11.4 degrees; and in March 12.6 degrees.

The average temperature of the entire year was 17.21 degrees C.; the entire rainfall 2437.57 mm.

There are no dangerous fevers in this region, nor dysentery, nor chronic diarrhœa, nor pernicious affections of the respiratory organs, nor rheumatism.

Another meteorological type, from the Atlantic region, is reproduced from the observations of Dr. J. E. Hubbert, made for the Nicaragua Canal Company at San Juan, for the year 1890. They are as follows:

| Month. | ● Total Rainfall. | Average Temperature. | Maximum Temperature. | Minimum Temperature. |
|---|---|---|---|---|
| Jan. | 26.80 ins. or 670 mm. | 75° F. or 23.5° C. | 81° F. or 27° C. | 70° F. or 21° C. |
| Feb. | 6.86 " " 171.5 " | 76 " " 24 " | 80 " " 26.5 " | 72 " " 22 " |
| March | 5.93 " " 148.25 " | 77 " " 25 " | 81 " " 27 " | 73 " " 23.5 " |
| April. | 18.11 " " 452.5 " | 75 " " 23.5 " | 78 " " 26 " | 72 " " 22 " |
| May. | 4.93 " " 123.25 " | 76 " " 24 " | 80 " " 26.5 " | 72 " " 22 " |
| June. | 46.84 " " 1171 " | 79 " " 26.5 " | 84 " " 29 " | 74 " " 23 " |
| July. | 52.55 " " 1313.75 " | 78 " " 26 " | 81 " " 27 " | 75 " " 23.5 " |
| Aug. | 35.72 " " 893 " | 78 " " 26 " | 81 5 " " 27.25 " | 75 " " 23.5 " |
| Sept. | 8.14 " " 203.5 " | 83 " " 28 " | 89 5 " " 32 " | 75 " " 23.5 " |
| Oct. | 24.36 " " 609 " | 77 " " 24.5 " | 80.5 " " 26.75 " | 74 " " 23 " |
| Nov. | 25.55 " " 638.75 " | 76.5 " " 24.25 " | 82 " " 27.5 " | 71 " " 21.5 " |
| Dec. | 41.65 " " 1041.25 " | 76.5 " " 24.25 " | 81 " " 27 " | 72 " " 22 " |
| Total, 296.94 ins. or 7435.75 mm. | | | | |

For the Pacific side there are observations from the city of Rivas, about 177 feet above the sea, situated between the great lake of Nicaragua and the Pacific Ocean. During one year the mean highest temperature was 86 degrees F. (30 degrees C.); the mean lowest 71 degrees (21.5 degrees C.), and the mean average of a year 77 degrees (25.5 degree C.). The amount of rain which fell from May to November inclusive, was 90.3 inches; from December to April inclusive, 7.41 inches; and the total for the year, 97.44 inches.

More details about the rainfall, observed at the city of Managua, relate to the years of 1891 and 1892, and are due to Dr. Bruno Mierisch, in Masaya.

There fell no rain during the months of January, February, March and April, and very little in December. During the months of May, June, July, August, September, October and November there fell in 1891, 1241.8 mm., and in 1892, 1688.5 mm., which gives an average of 1500 mm. (60 inches).

In 1891 there were 3 rainy days in May; 20 in June; 18 in July; 14 in August; 18 in September; 19 in October; 13 in November; and 5 in December; a total of 105 rainy days.

In 1892 there were 21 rainy days in May; 24 in June; 15 in July; 26 in August; 23 in September; 23 in October; and 8 in November; a total of 140 rainy days.

During the dry season the sky is cloudless; vegetation dies; the leaves of a number of trees fall; the fields become parched. This southern summer has practically similar effects to those of a northern winter. In this season the temperature is less often cool; the air, and, indeed, nearly everything, is filled with dust; many rivers and creeks dry up. In many places, especially in the Departments of Carazo, Rivas and Granada, it has been necessary to sink artesian wells in order to secure to the people a supply of water.

In regard to salubrity the summer is considered healthier than the winter, although less agreeable. The healthiest months of the year are January, February, March and April, and the most sickly are June and July. The most prominent disease is an intermittent fever, usually mild in character and cured by simple remedies. There are also cases of dysentery, especially among children, and sometimes dangerous affections of the respiratory organs, but there is no yellow fever.

Owing to its varied topography Nicaragua has its "tierra caliente" (hot zone), its "tierra templada" (temperate zone), and its "tierra fria" (cold zone). The Atlantic and Pacific coast lands, except where broken by mountains, as well as the plains surrounding the lakes and also the valley of the San Juan River, are regarded as *tierra caliente*, and are highly productive of tropical plants, especially of cacao and rubber. The *tierra templada* is found on the slopes of the volcanoes, the land of which is favorable to coffee raising, and also on the mountain ridges along the Pacific as well as on some slopes of the Cordilleras of Nueva Segovia, Jinotega, Matagalpa and Chontales. In the highlands of these departments and on the higher mountains is found the *tierra fria*, with pine and oak forests and lands adapted to wheat and other cereals.

Most of the people of Nicaragua live in the *tierra caliente*, which is less dangerous to health because of the porous tufas which enter into its formation. About two-thirds of the population have settled on the lake and Pacific coast lands.

In this distribution of people Nicaragua differs remarkably from Guatemala, Salvador, Costa Rica, and also from Mexico.

The population of the *tierra templada* and the *tierra fria* is, for want of cart roads, in a state of isolation, and, therefore, further behind in civilization.

## III.

## CHARACTER OF VEGETATION.

The vegetation of Nicaragua depends greatly on its meteorological conditions. In the following phytographical sketch the reader is taken to the Atlantic coast, and thence over the terrace lands to the isthmus lying between the lakes and the Pacific Ocean. The entire Atlantic slope, from the coast to the so-called Cordilleras de los Andes, has about the same quantity of rainfall, the same seasons and the same meteorology. The dividing line between the Atlantic and the Pacific phytographical conditions goes generally along the eastern mountain wall of the Nicaragua terrace lands.

The border of the Atlantic coast contains a great number of points, gulfs, bays and lagoons, and is crossed by many rivers which broaden on their way to the ocean, and through branches, arms and lagoons often connect one with the other. Along the low and swampy coast there are found enormous tracts of mangroves (Rhizophora Mangle L.) and coco palms (Cocos nucifera L.). Here and there live a small number of Zambos-Mosquitos, who engage in selling provisions, liquors, clothing, etc., to the extractors of rubber and the hunters of deer and other animals in the interior. From here are visible a number of the ramifications and ends of the Andes.

Going up one of the many rivers we see its waters slowly flowing through a large tract of low and partly swampy lands. Both banks present a narrow belt of trees and palms and shrubs, densely covered with vines and climbing plants. Beyond these are extensive plains clothed with grass, very often low and swampy, and dotted with lagoons. From the Rio Grande northward the subsoil of all the coast lands and, to a great extent, of the interior lands for many miles is composed of pure quartz pebbles covered only with a few inches of humus. The water readily percolates through this soil, and, hence, we find above it immense evergreen savannas and large forests of pines and palms, among which are hamlets (caserios) and small Indian cattle ranches. The region is a paradise for hunters. This character is general where the shores of the rivers begin to rise, and only changes when the foothills and the rapids, here called *raudales*, are reached, and where also steam navigation ends. Here the savannas cease, and a different forest, denser and higher, with fewer vines, begins. An evergreen virgin forest, dark and beautiful in the variety of its vegetation, often with pacayas (Chamaedorea Pacaya Oerst) and tree-ferns (Alsophila aculeata Swartz) underneath, cover the now broken and hilly lands, on which the humus often attains a depth of four feet. Here also is found in abundance the Central American rubber tree (Castilloa elastica Cerv.).

In this region the rivers are only navigable by small boats. We see here and there houses of lumbermen who deal in caoba (Swietenia mahogani L.) and cedar (Cedrela odorata L.), or the huts of the *hulcros* or the extractors of rubber. The shores of the rivers become higher, their currents run faster, and their courses are more tortuous. Very soon points are reached where even canoes must be left behind. The alluvial soil long ago gave place to laterite, a reddish clay of great fertility. The forest now becomes still higher and darker and its trees straighter. Innumerable creeks cross the valleys and cañons. Very often the naked porphyrous and melaphyric rocks of the mountains are seen, sometimes also the basalts, trachytes and andesites of older formations. Here the temperature is milder and during the night it is rather cold. In the morning there are fogs, and

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in the afternoon frequent showers and thunder storms occur. In this region grow the caoba, cedar, ron-ron, almendro, posan, lagarto, palo de arco, plomo, laurel, as also rubber and hundreds of other kinds of trees and useful plants.

The same region furnishes abundant nourishment to hundreds of birds; to the beautiful quetzal and other *Trogonidæ* of equally brilliant and metallic plumage; to the different lapas (*Ara*) and other *Psittacidæ* of elegant exterior; to the oropendola (*Ostinope Montezumæ*) remarkable for its hanging nests; to the toucans (*Rhamphastidæ*); to the ocos or pavones (*Crax, Meleagris, Penelope* and *Oreophasis*); and an immense number of small birds. In this region dwell also large numbers of monkeys, jaguars, cougars and other wild cats, the tapirs, the jabali and peccary, the guardatinaja (*Cælogenis paca*), the pisote (*Nasua socialis*), the oso real (*Myrmecophaga*), the perezozo (*Cercoleptes*), the pericoligero (*Galictis barbara*), the huatusa (*Dasyprocta*), various deers (*Cervus*) and many other animals.

Soon the dividing line is reached. From a region of cloudy and rainy skies we come suddenly upon one of sunshine, from the virgin forest to an *ocotal* (pine forest) and *roblares* (forests of oaks).

As the dividing mountain range is abruptly broken, so are the changes of climate and vegetation. The change from a virgin forest to an ocotal is often so sharply marked that the border line between them can be distinctly traced and even measured off, as with a surveyor's chain.

There is as great difference in climate and vegetation as there is in the landscape. We left on the other side the immense but uniform, evenly covered and slowly descending slopes of the Andes. Here before us we have a chaos of mountains, hills, valleys, plains, lakes, volcanoes, etc., which represent one of the greatest of terrestrial convulsions. Near by we seem to behold a solidified furious sea; further down we observe the vast plain with splendid lakes, and then the majestic line of volcanoes, whose summits generally wear a cap of clouds; still again we see the cities, towns and villages built on the shores of the lakes, on the slopes of the mountains and on the plains of Leon and Chinandega. Finally, beyond this water-shed of two great oceans, lies the vast Pacific.

Analyzing this wonderful panorama, we see around us a number of high mountains, like those of Matagalpa, Jinotega, Datanli, Pantasma, Apanase and others, the sides of which bear the fertile character of the Atlantic slopes. We see them also largely cultivated with coffee, corn, etc., and, although they are partly beyond the dividing line, being high they still receive the moisture of the other region, which comes up through the river valleys that break through the main dividing chain. It might here be said that all the large rivers rise beyond this main dividing line, except the Bluefields and those south of that.

The character of the country changes, as has been already mentioned, very suddenly toward the terrace lands. Here the mountains are covered with pines and lower down with oaks (robles). There are pine forests, as for instance near San Rafael, which are over 30 miles in length and about 6 miles in width, and crossed by a number of rivers. The pines often mingle with the oaks, although the oak prefers a better soil. These trees cover the lower sides of the mountains and the slopes at their feet.

Looking down on the table-land we see a great number of basalt and andesite circles of considerable extent, in whose centres are large grassy plains on which grow, here and there, the jicaro (Crescentia Cujete L.) tree, covered with epiphytes (air plants) and parasites, which gives the landscape a very singular physiognomy. The terrace lands of Ocotal, Jinotega and Esteli present for the most part treeless llanos, having excellent pastures, which also extend to the hills and which remain green when on the lowlands of the lakes or on the isthmus, along the Pacific everything is dry and dead.

Descending the dividing ridge, now mostly covered with pines and oaks, we note that the virgin forests have ceased, and we are more in the region of rocks and scenes of volcanic energy.

Everything around shows the proximity of the volcanoes which did such tremendous work further down. The mountains and hills are no more clad with dense forests, as on the other side. Only here and there are seen small islands of forest trees and two narrow strips of lower trees along the banks of the rivers which flow to the lakes. The ligneous vegetation consists more of *matorrales* (low trees and bushes), and there are more grassy than wooded lands.

Coming down to the llanos of the first terrace we find them often surrounded by roblares. The plains are broad, but mostly swampy, forming the so-called *jicarales.* They have a dark clay soil in which in summer time tremendous fissures open. As they are covered with grasses they are used for pasturage, and only for agriculture where a creek has mixed the clay with sand. The hills and mountains are stony, but covered with oaks and matorrales and small trees, like the guayacan, brazil and fustate, which let their leaves fall during the dry season, and also with cacti, agave and bromelia. Especially arid are the hills of volcanic ash and the flat plains of the same origin along the lake of Managua. A little better, because they have more rain, are the llanos of Chontales, but there also are jicarales for miles and miles. Their hills have open woods and they are also partly cultivated.

Leaving the slopes of the first terrace and coming down to warmer lowlands, we encounter a belt of forest containing numerous species of trees densely covered with vines and climbing plants; and now we stand before the lakes. In the larger, the Great Lake of Nicaragua, beautiful islands are embosomed. The flat lake valley has generally a much better vegetation than that of the just described Andean slope. The hills are covered with forests and the plains contain a great number of *potreros,* or grassy lands mixed in an irregular way with trees and bushes, on which cattle browse. Here and there also are jicarales, but, with a few exceptions, of less extent than those already described. In many places the land is cultivated. The prevailing trees are pochote (*Bombax macrocarpum K. Sch.*), guacimo (*Guazuma ulmifolia Lam.*), guabillo (*Inga sp.*), guanacaste (*Enterolobium cyclocarpum Gr.*), elequeme (*Erythrina corralodendron L.*), chilamate (*Ficus sp.*), guarumo (*Cecropia insignis Liebm.*), espino, madroño (*Calycophyllum candidissima D. C.*), and jocote (*Spondias lutea L.*). The most common plants are a kind of verbesine, a kind of spiranthes and a species of sida. Very abundant is also the piñuela (Bromelia), which is generally used for fences.

Ascending again on the way across the mountain ridge between the lakes and the Pacific, we encounter a change in climate. In these higher elevations there is less heat and considerably more rainfall than below, probably because the range, rising somewhat abruptly, presents an opposing wall to the clouds coming from the east, chiefly through the valley of the San Juan River. There is a remarkable difference in the rainfall and moisture and in fertility between the lake and the Pacific fronts. For this reason the vegetation on the side facing the lakes is richer than on the opposite side. For the same reason the coffee tree grows better on the eastern than on the western slope. But the quality of this coffee is not equal to that of the Cordillerean region because of a well defined dry season of many months. As stated in the topographical and geological description, these mountains or highlands rise to about 3,000 feet, and have been covered to a considerable depth, as have all the lands along the line of the volcanoes, with their eruptive material. On the Pacific slope there are creeks which run sluggishly for a short distance through the gradually descending pastoral and slightly wooded lands to the ocean, which announces its nearness with a thunderous noise caused by the breaking of its swell into surf.

Along the coast the little rivers discharge into swamps, and the vegetation is composed mostly of mangrove and icaco. Here also grow the *cocales*, though less abundantly than on the Atlantic side.. Inland jicarales occur in many places. In Chinandega are immense swamps facing the Gulf of Fonseca. There are also many valuable forests along the river courses or depressions. The vegetation of the San Juan valley belongs to the Atlantic flora, although it is less rich and dense in the upper than in the lower part.

The following tables give an enumeration of the vulgar names of woods, tannings, dyeings, textile plants, drugs and medicines, gums, resins, rubbers, etc.

# Native Names of Nicaraguan Woods.

Acei[illegible]uno.
Achote or Achiote.
Achotillo.
Aguja.
Aguja de arras.
Aguacate de monte.
Aguacate colorado.
Alba.
Alamo.
Almendron.
Almendro negro.
Algodon.
Amargoso.
Ahuehué or espavel.
Alcornoque.
Anono.
Anono colorado.
Arrayan.
Areno.
Apasilague.
Azaharcito.

Balsa.
Barillo.
Balsamo negro.
Balsamo amarillo.
Balsamito.
Bambayan.
Bainillo.
Barazon.
Brazil macho.
Brazil.
Brazilillo.
Barbasco.
Burillo blanco.
Burriquita.
Brujo.

Caoba leonado.
Caoba.
Caoba claro.
Cacahuito.
Café.
Carao.
Cangrejo.
Capulin cimaron.
Capulin.
Capulin de monte.
Canilla de venado.
Cascuchigue.
Caraña.
Caraña negro.
Capirote.
Cascarilla.
Cacalojoche.
Capirote.
Cachito.
Caimito.
Camiva or copaiba.
Cacao mico.
Cacao.
Carbon.
Canelon.
Canelo amarillo.
Canelo.
Cajinicuil.
Campeche.
Caulote.
Cedro espino.
Cedro real.
Cedro comun.
Cedro caoba.
Cedro.
Cedro macho.
Cerito.
Cedron.
Cerillo.
Cera vegetal.
Ceiba.
Ceibillo.
Cenizaro.
Cedrillo.
Chiquirin.
Chile.
Chilillo blanco.
Chilillo amarillo.
Chilamo.
Chaperno blanco.
Chaperno negro.
Chaperno.
Chirimoya.
Chilamate.
Chilamatillo.
Chilca.
Chocomico.
Chocoyo macho.
Chocoyo hembra.
Chocollito.
Chicharron.
Chinameca.
Chichipate.
Chaparron .
Cidra.
Cincho.
Cincoya.
Ciruelo.
Ciruelo de monte.
Ciruelillo.
Cicaguite.
Cortés macho.
Cortés colorado.
Cortés.
Cortés negro.
Cornizuelo.
Coyote.
Coyolito.
Coyol.
Conmoje.
Copalchi.
Copal.
Copalchiton.
Cocobola.
Coco.
Cordoncillo.
Copel.
Coralito.
Corozo.
Cojon de mico.
Crucecito.
Culumate.
Cutura.

Dragonero.
Durasnillo.

Ebano.
Elequeme.
Elequemito.
Encino.
Espino negro.
Espino blanco.
Espino de playa.
Espino santo.
Espino macho.
Espino verde.
Espabel.
Escobillo blanco.
Escobillo de patio.
Escobillo amarillo.
Escobillo ocre.
Esquisito.
Estorague or liquidambar.
Flor blanca.
Flor amarilla.

Flor de Nacastape.
Fruto negro.
Funera.
Frijolillo.

Garrobo.
Gavilan.
Goma.
Granadillo.
Granadillo amarillo.
Granadillo blanco.
Granadillo negro.
Granada.
Guachipilin.
Guapinol.
Guanacaste colorado.
Guanacaste negro.
Guacimo de ternero.
Guacimo blanco.
Guacimo molenillo.
Guacimo negro.
Guacimo amargo.
Guacimo dulce.
Guanguero.
Guacuci.
Guanábana.
Guarumo.
Guayabo de monte.
Guayabo.
Guayacan.
Guayacan amarillo.
Guache.
Guaje.
Guabillo.
Guayabillo.
Guiliguiste.
Guiliguiste amarillo.
Guiscoyol.
Guitarrero.
Guitito.
Gusenague.
Gutta-percha.

Higueron.
Higo.
Hoja ancha.
Hoja chigué.
Hoja menuda.
Hoja tostada.
Hoja pendolla.
Hombre grande.
Huilihuiste.
Huesito.
Huacal.
Huacuco.
Huaviluna.
Huache or guache.
Huelenoche.

## Native Names of Nicaraguan Woods—Continued.

Hule.
Huevo de burro.

Icaco.
Irarosa.
Irarosa bacina.
Irarosa amarilla.
Iril.
Irayol.
Ilamo.

Jaboncillo.
Jagua or Lliguaitil or Guaitil.
Jenicero.
Jobo.
Jocote jobo.
Jocote fraile.
Jocote verde.
Jocote negro.
Jocote.
Jocomico.
Jelinjoche montés.
Jicaro montés.
Jicaro sabanero.
Jicarito.
Juasca cuague.
Jollo.
Jinocuague.

Lagarto.
Laurel.
Laurel macho.
Laurel comun.
Laurel real.
Laurel hembra.
Laurel negro.
Laurel blanco.
Lirio.
Liquidambar.
Limon.
Limoncillo.
Liston.
Lima.
Leche.
Leche amarilla.
Llema de huevo.
Matapiojo.
Madrono colorado.
Madroño.
Madroño negro.
Madera negro.
Madre cacao.
Mangle oscuro.
Mangle blanco.
Marañon.
Mano de leon.
Mano de tigre.
Mango.
Malinche.
Maria.
Manteco.
Machalaguiste.
Majagua.
Manzano.
Manzano de rosa.
Manzano blanco.
Matapalo montés.
Matapalo amarillo.
Matapalo negro.
Mazorquillo.
Maquengue or Makengue.

Matasano.
Mascobo.
Marango.
Macuelizo.
Manchon.
Mamey.
Melon.
Melero.
Mico.
Mora.
Morisco.
Moran.
Moroporán.
Morillo.
Muñeco.
Muñeco blanco.
Muscuaniste.
Muerto.
Murcielago.
Muchuguiste.

Ñacascolo.
Ñambar excelsior.
Ñambar.
Naranjo blanco.
Naranjo dulce.
Nance.
Nancite.
Nancite agrio.
Nancigui.
Nispero.
Nispero montes.
Niño muerto.
Nogalillo.
Negro.
Negrito.

Ocote.
Ocotillo.
Ojoche macho.
Ojoche amarillo.
Ojoche comun.
Olivo silvestre.

Pacaya.
Palo de carbon.
Palo de sangre.
Palo de arco.
Palo de cacho.
Palo de leche.
Palo de piedra.
Palo percha.
Palo de zapo.
Palo de rosa.
Palo de sebo.
Palanco.
Pan or palo de pan.
Patacon or racun.
Papayo montés.
Paraiso.
Papaturro.
Pacica.
Panama.
Pastor.
Pataste.
Papaya.
Pastores.
Palma real.
Padre y Madre.
Peine de mico.
Pimienta de monte.

Piedra.
Pipilacho.
Piojillo.
Pino.
Pijiballe.
Platanillo.
Plomo.
Pochote amarillo.
Pochote.
Pochotillo.
Pozol.
Poroporo.
Posan.
Poponjoche.

Quebracho amarillo.
Quebracho negro.
Quebracho colorado or Sare.
Quesillo.
Quina blanca.
Quina negra.
Quisará blanco.
Quiriquis.
Quita calzon.
Quitacalzon negro.

Reseda.
Roble espino.
Roble.
Ronron.
Ronron colorado.

Salamo.
Sarna.
Sauce.
Sangredo.
Sangre de drago or Sangregrado.
San Sebastian.
San Juan.
Sapotillo.
Sasafraz.
Sietecuero.
Soncollo.
Sombra de ignana.
Sopilote.
Sota caballo.
Sonsapote.
Suite.
Suncho.

Talalate.
Tamarindo.
Tamarindo terciopelo.
Tatascame.
Tapabotija.
Tamascon.
Talcacao.
Tabaquillo.
Tarai.
Tecuamajuche.
Tempisque.
Tepalon.
Tempate.
Teton.
Tiocuaje.
Tiguilote.
Toro.
Toronja.
Tololo macho.

## Native Names of Nicaraguan Woods—Continued.

Tololo.
Tres Ojos.
Trigre.
Troton.
Tusa.

Uva.
Ujuste.
Uña de gavilan.

Vara blanca.
Vara de alcalde.
Vaina de espada.
Vainillo negro.
Vainillo colorado.

Yema de huevo.
Yugualti or jagua.
Yolillo.

Zapote.
Zapote mico.
Zopilote.
Zontol.
Zanguayan.
Zorro.
Zapotillo.

## Native Names of Nicaraguan Tannings and Dyeings.

Achiote, dyeing.
Añil or Jiquilite, dyeing.
Aguacate, tanning.

Castenequeme, dyeing.
Cachito, tanning.
Corteza roble, tanning.
Corteza elequeme, dyeing.
Corteza nancite, tanning and dyeing.
Corteza chichipate, tanning.
Corteza encino, tanning.
Corteza guanacaste, tanning.
Corteza mangle, tanning and dyeing.

Chaparro, tanning.

Guatuco, dyeing.

Mora, dyeing.

Ñascascolo, dyeing and tanning.

Ojo de Venado, dyeing.

Palo Brazil, dyeing.

Sacatinta, dyeing.
Sangre dedrago, dyeing.

Yuquilla, dyeing.

## Native Names of Nicaraguan Gums and Resins, Rubbers, Vegetable Wax, Balsams.

Balsamo camivar.
Balsamo liquidambar.
Balsamo copaiba.
Brea, resin.

Cachito, gum.
Cedro, gum.
Cera vegetal, vegetable wax.

Espino blanco, gum.

Goma tuno, gutta-percha.

Hule, rubber.

Iscanal, gum.

Jobo, gum.
Jocote, gum.

Liquidambar, resin.

Malcajaco, gum.
Mangle, gum.
Marango, gum.
Nopal, gum-resin.

Trementina, turpentine.

## Native Names of Nicaraguan Textile Plants.

Anono colorado.

Burillo.

Cabulla.
Canilla vegetal.
Ceibo.
Coco.
Chupamiel.

Guarumo.

Escobilla.

Junco.

Majagua.
Mastate.
Mosote.
Macume.
Majaguillo.
Maguey.

Paja de jipijapa.
Palma de sombreros.
Peine de mico.
Pita.
Piñuela.
Piña.
Pochote.
Platano.

Soncollo.

Tule.

## Native Names of Nicaraguan Medicinal Plants.

Albahaca.
Alchuca.
Apasote.
Amapola.
Ajenjo.
Artemisia.

Barba de viejo.
Barba de cerro.
Boaco.
Borraja.
Bellisima.
Burriquita.
Bejuco de San Juan.
Bejuco de pita.
Bejuco de sardina.
Bejuco del hombre.
Bejuco del diablo.
Bejuco de papamiel.
Bejuco de perro.
Bejuco de copeito.
Bejuco de vergatoro.
Bejuco de corraliso.
Bejuco de picamano.
Bejuco blanco.
Bejuco caribe.
Bejuco hojachigue.
Bejuco negro.
Bejuco del amor.

Canchalagua.
Cascarrilla.
Caña de cuajichote.
Canutillo.
Capitaneja.
Canjura.
Cañafistula.
Cardo santo.
Carao.
Cabello de angel.
Cebollin.
Chilmetate.
Coloquintida.
Corona de cristo.
Cola de alacran.
Cola de gallo.
Cola de lapa.
Copalchi.
Cordoncillo.
Contrayerba.
Corteza de critrina.
Corteza de tinte.
Corteza de pellejo de vieja.
Corteza de jinocuabo.
Corteza de guayacan.
Corteza de balsamo negro.
Corteza de laurel macho.
Corteza de quebracho blanco.
Corteza de liquidambar.
Cuculmeca.
Culantro silvestre.

Elequeme or poroporo.
Eneldo.
Escobilla.
Escorzonera.
Espadillo.

Flor de sauco.
Flor de piedra.
Flor de pochote.
Friega plato.

Grama.
Guarumo.
Huasimo.
Hoja de buey.
Hoja de piedra.
Hoja sen.
Huistomate.

## Native Names of Nicaraguan Medicinal Plants—Continued.

Jenciana.
Juanislama.

Leche de perro.
Lengua de ciervo.
Lengua de pajaro.
Llanten.

Malva comun.
Malva silvestre.
Manzanilla.
Meona blanca.
Moradita.
Morazan.
Moroparán.

Nagnapate.

Ojo de venado.
Orégano.
Orosús negro.
Orosús.

Pavana.
Pericon.
Pico de pato.
Pico de pajaro.
Pijivalle.
Poligala.
Polipodio.

Quelite.
Quina blanca.

Raiz de cuasquite.
Raiz de la corona.
Raiz de la estrella.
Raiz de cuculmeca.
Raiz de cereus.
Raiz de picamono.
Ruda.
Ruibarbo.

Sapoyol.
Salvia.
Sacate limon.
Semilla de aroma.
Siempreviva.
Sin verguenza.
Suelda con suelda.

Tapate.
Tapa botija.
Tempate.

Uva montes.

Vitamo.
Vetiver.

Yerba té.

Zarza mora.
Zarza negra.
Zarza comun.
Zarzaparrilla.
Zorrillo.

## Native Names of Nicaraguan Oilseeds.

Ajinjoli.
Algodon.

Cacahuite.
Cardosanto.
Chan.
Coco.
Corozo.
Culantro.

Coyol.

Higuerillo or Ricino.
Huiscoyol.

Lino.

Melon.

Piñon (Jatropha).

## Native Names of Nicaraguan Spices.

Anis.

Chile.
Cominillo.
Culantro.

Eneldo.

Gengibre.

Mejorana.
Mostaza.

Pimienta.

Vainilla.

## IV.

## POPULATION.

Nicaragua is politically divided into 12 departments, 3 comarcas, 2 districts and 110 municipalities, with 108 jurisdictions, as follows:

| No. | Department. | Jurisdictions. | Cities. | Towns. | Villages. | Valleys. | Caserios. | Population. |
|---|---|---|---|---|---|---|---|---|
| 1. | Managna | 7 | 1 | 2 | 4 | 9 | 16 | 42,460 |
| 2. | Masaya | 8 | 2 | 2 | 4 | 4 | 15 | 33,869 |
| 3. | Granada | 4 | 2 | .. | 2 | 9 | 9 | 18,988 |
| 4. | Carazo | 6 | 2 | 1 | 3 | 4 | 11 | 18,545 |
| 5. | Rivas | 8 | 2 | 5 | 5 | 6 | 32 | 25,889 |
| 6. | Leon | 9 | 1 | 3 | 5 | 27 | 51 | 87,772 |
| 7. | Chinandega | 10 | 4 | 1 | 7 | 31 | 19 | 34,614 |
| 8. | Chontales | 13 | 4 | 2 | 7 | 16 | 122 | 40,887 |
| 9. | Matagalpa | 7 | 2 | .. | 5 | 61 | 35 | 29,895 |
| 10. | Jinotega | 7 | 2 | 1 | 4 | 81 | 97 | 37,658 |
| 11. | Nueva Segovia | 18 | 2 | .. | 16 | 77 | 134 | 32,642 |
| 12. | Zelaya | 9 | 2 | .. | .. | 52 | .. | 14,541 |
| 13. | District of Prinsapolca |  |  |  |  |  |  |  |
| 14. | District of Siquia |  |  |  |  |  |  |  |
| 15. | Comarca, Rio Grande |  |  |  |  |  |  |  |
| 16. | Comarca, Cabo de Gracias á Dios | 1 | .. | .. | .. | 30 | .. | 4,000 |
| 17. | Comarca, San Juan del Norte. | 1 | 2 | .. | 3 | .. | .. | 2,000 |

The following table gives the cities of Nicaragua with their populations; first of the city itself, and second with its jurisdiction included. These data are found in the statistical office and in the memorial prepared by the Nicaraguan Department of Gobernacion (Interior):

| Name. | Department. | Pop. | Houses. | Streets. | Plazas. | Jurisdic'n. |  |  | Commercial Facilities. |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Val. | Cas. | Pop. |  |  |
| Leon | Leon | 45,000 | 4,570 | 41 | 10 | .. | .. | 49,964 | R.R Sta'n. | P. O. |
| Managua | Managua | 25,000 | 3,000 | 55 | 7 | 2 | 13 | ...... | §Lakeport. | " |
| Masaya | Masaya | 15,000 | .... | 38 | 6 | 1 | 2 | 15,850 | R.R Sta'n. | " |
| Chinandega | Chinandega | 12,620 | 2,588 | 32 | 8 | . | †4 | 15,070 | R.R.Sta'n. | " |
| *Granada | Granada | 9,086 | 4,494 | 21 | 5 | 7 | 5 | 11,493 | §Lakeport. | " |
| Jinotepe | Carazo | 6,500 | 476 | 19 | 3 | 1 | 5 | 7,210 | .......... | " |
| Bluefields | Zelaya | 5,000 | 582 | 19 | .. | .. | .. | ...... | Seaport. | " |
| Diriamba | Carazo | 4,500 | 908 | 22 | 2 | 2 | 2 | 5,010 | .......... | " |
| Jinotega | Jinotega | 4,325 | 727 | 49 | 4 | 23 | 10 | 11,742 | .......... | " |
| El Viejo | Chinandega | 4,021 | 131 | 25 | 5 | 8 | 3 | 5,152 | R.R.Sta'n. | " |
| Masatepe | Masaya | 4,000 | 120 | 22 | 3 | .. | 2 | 4,350 | .......... | " |
| Chichigalpa | Chinandega | 3,813 | 375 | 32 | .. | .. | 4 | 4,145 | R.R.Sta'n. | " |
| Rivas | Rivas | 3,800 | 1,510 | .. | .. | .. | ‡8 | 11,000 | R.R Sta'n. | " |
| Matagalpa | Matagalpa | 3,683 | 329 | 20 | 3 | 30 | 8 | 14,378 | .......... | " |
| Boaco | Chontales | 2,796 | 262 | 11 | 1 | .. | 18 | 14,000 | .......... | " |
| Juigalpa | Chontales | 2,000 | 150 | 11 | 1 | 4 | 6 | 5,364 | .......... | " |
| Nandaime | Granada | 2,500 | 604 | 10 | 1 | 1 | 4 | 3,019 | .......... | " |
| Metapa | Matagalpa | 1,795 | 143 | 6 | 2 | 9 | 5 | 3,687 | .......... | " |
| Esteli | Jinotega | 1,683 | 238 | 12 | 2 | 9 | 31 | 13,237 | .......... | " |
| Ocotal | Nueva Segovia | 1,630 | 288 | 13 | 1 | .. | 2 | 1,739 | .......... | " |
| Corinto | Chinandega | 1,397 | .... | .. | .. | .. | .. | ...... | §Seaport. | " |
| Somote | Nueva Segovia | 1,224 | 169 | 10 | 1 | 12 | 28 | 6,406 | .......... | " |
| San Juan del Norte | S. Juan del Norte[1] | 1,166 | .... | .. | .. | ¶ | 3 | 2,000 | Seaport. | " |
| Rama | Siquia[2] | 825 | 78 | 17 | .. | .. | .. | ...... | .......... | " |
| Acoyapa | Chontales | 800 | 103 | 10 | 1 | 2 | 12 | 2,380 | .......... | " |
| La Libertad | Chontales | 741 | .... | .. | .. | 1 | 7 | 3,162 | .......... | " |
| Ciudad America | S. Juan del Norte[1] | 500 | .... | .. | .. | .. | .. | ...... | Seaport | " |
| San Juan del Sur | Rivas | 329 | .... | .. | .. | .. | 4 | 674 | " | " |

* This number must be an error. † 1 city; 1 town. ‡ 2 towns. § Also R. R. Station. ¶ 1 city. [1] Comarca. [2] District.

The towns (*Villas*) of Nicaragua, following the same official sources of information, are as follows:

| Name. | Department. | Pop. | Houses. | Streets. | Plazas. | Jurisdiction. |  |  |  | Commercial Facilities. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Val. | Cas. | Pueb. | Pop. |  |  |
| La Paz | Leon | 6,000 | 300 | .. | 1 | .. | .. | .. | .... | R. R. Sta. | Post Office. |
| Nagarote | Managua | 3,000 | 500 | 25 | 2 | .. | .. | .. | .... | ........... | " |
| San Marcos | Carazo | 2,600 | 138 | 14 | 1 | 1 | 1 | .. | 3,000 | ........... | " |
| Belen | Rivas | 2,400 | ... | 19 | 2 | 2 | 2 | 1 | 4,330 | ........... | " |
| Alta Gracia | " | 2,000 | ... | 13 | .. | 2 | 3 | .. | 3,000 | Lakeport. | " |
| La Victoria | Masaya | 2,000 | ... | .. | .. | .. | 3 | .. | 3,400 | ........... | " |
| Tipitapa | Managua | 1,500 | 38 | 7 | 1 | .. | .. | .. | .... | ........... | " |
| Nindiri | Masaya | 1,500 | 178 | 7 | .. | .. | 3 | .. | 2,200 | R. R. Sta. | " |
| San Jorge | Rivas | 1,382 | ... | 9 | .. | .. | 2 | 1 | 2,000 | " | " |
| Buenos Ayres | " | 996 | 254 | 16 | 1 | .. | 3 | .. | 1,500 | ........... | " |
| El Jicaral | Leon | 800 | 99 | 9 | 1 | 5 | 4 | .. | 1,689 | ........... | " |
| Santa Rosa | " | 700 | 222 | 6 | 1 | 15 | 13 | .. | 4,688 | ........... | " |
| Potosi | Rivas | 615 | 116 | 12 | 1 | .. | 7 | .. | 1,667 | ........... | " |
| Camoapa | Chontales | 580 | 59 | 10 | 1 | .. | 12 | .. | 2,129 | ........... | " |
| Comalapa | " | 440 | 56 | 8 | 1 | .. | 9 | .. | 2,732 | ........... | " |
| La Trinidad | Jinotega | 212 | 79 | 11 | 2 | 13 | 16 | .. | 3,204 | ........... | " |
| Realejo | Chinandega | 73 | ... | .. | .. | .. | .. | .. | .... | ........... | ........... |

The villages (*Pueblos*) of Nicaragua, as officially stated, are as follows:

| Name. | Department. | Pop. | Houses. | Streets. | Plazas | Jurisdic'n. | | | Commer'l Facilities. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Val. | Cas | Pop. | | |
| Subtiava | Leon | 8,000 | ... | .. | . | .. | 5 | 8,655 | R. R. Sta. | P. O. |
| El Sauce | " | 7,500 | 500 | 13 | 1 | 15 | 4 | 9,697 | ........ | " |
| Teustepe | Managua | 4,000 | 83 | 8 | 1 | .. | .. | ..... | ........ | " |
| Telica | Leon | 3,000 | 250 | 14 | 1 | .. | 6 | 4,327 | ........ | " |
| Diriomo | Granada | 3,000 | 717 | 6 | 1 | .. | .. | ..... | ........ | " |
| San Rafael del Sur. | Managua | 3,000 | 133 | 11 | 2 | .. | .. | ..... | ........ | " |
| La Concepcion | Masaya | 2,000 | ... | .. | .. | .. | 4 | 3,800 | ........ | " |
| Nandasmo | " | 1,500 | ... | 6 | 1 | .. | 1 | 1,650 | ........ | " |
| Santa Teresa | Carazo | 1,500 | 226 | 18 | 1 | .. | 3 | 2,050 | ........ | " |
| Catarina | Masaya | 1,349 | ... | .. | .. | .. | .. | 1,419 | ........ | " |
| Diria | Granada | 1,273 | 700 | .. | 1 | .. | .. | 1,426 | ........ | " |
| Somotillo | Chinandega | 1,051 | 426 | 28 | .. | 5 | 4 | 2,464 | ........ | " |
| Quezalguaque | Leon | 1,000 | 202 | 8 | 1 | .. | 3 | 1,525 | R. R. Sta. | " |
| Tisma | Masaya | 1,000 | . | 5 | 2 | .. | .. | 1,200 | ........ | " |
| Terrabona | Matagalpa | 996 | 51 | 3 | 1 | 4 | 6 | 2,328 | ........ | " |
| Villanueva | Chinandega | 958 | 195 | 11 | 1 | 3 | .. | 1,428 | ........ | " |
| Sébaco | Matagalpa | 850 | 70 | 9 | 1 | 3 | 14 | 1 867 | ........ | " |
| Muymuy | " | 810 | 57 | 7 | 1 | 7 | 3 | 4,890 | ........ | " |
| Mateare | Managua | 800 | 40 | 9 | 1 | .. | .. | .... | ........ | " |
| Tola | Rivas | 800 | ... | .. | .. | .. | .. | .... | ........ | " |
| Achuapa | Leon | 800 | 32 | 9 | 1 | | 3 | 1,227 | ........ | ........ |
| Posoltega | Chinandega | 705 | 132 | 6 | 1 | 1 | 4 | 1,265 | R. R. Sta. | P. O. |
| El Rosario | Carazo | 675 | 60 | 10 | 1 | .. | .. | .... | ........ | " |
| Esquipulas | Matagalpa | 702 | 100 | 11 | 1 | 3 | 1 | 1,412 | ........ | " |
| La Paz | Carazo | 675 | ... | 10 | 1 | .. | .. | .... | ........ | " |
| Moyogalpa | Rivas | 600 | ... | 11 | .. | 2 | 3 | 1,712 | Lakeport. | " |
| San Pedro | Chinandega | 513 | ... | . | .. | 5 | .. | 1,418 | ........ | ........ |
| Sto. Tomas | " | 510 | ... | .. | .. | 4 | .. | 1.205 | ........ | ........ |
| San Francisco | " | 506 | ... | .. | .. | 3 | .. | 1,022 | ........ | ........ |
| Limay | Nueva Segovia. | 503 | 108 | 9 | 1 | 2 | 19 | 1,329 | Lakeport. | ........ |
| Pueblo Nuevo | " " | 500 | 106 | 9 | 1 | 11 | 10 | 3,051 | " | ........ |
| San José | Chontales | 500 | 40 | .. | .. | .. | 13 | 1,939 | " | ........ |
| La Concepcion | Rivas | 500 | ... | .. | .. | .. | .. | ..... | ........ | ........ |
| Momotombo | Managua | 500 | ... | .. | .. | .. | .. | ..... | { R.R.Sta<br>{ Lakeport. | P. O. |
| San Carlos | Chontales | 459 | ... | .. | .. | .. | 3 | 739 | Riverport. | P. O. |
| San J'n deCincoPinos | Chinandega | 426 | ... | .. | .. | 7 | .. | 445 | ........ | ........ |
| San Rafael del Norte | Jinotega | 412 | .00 | .. | 1 | 6 | 8 | 4,000 | ........ | P. O. |
| Pueblo Nuevo | Rivas | 426 | ... | .. | .. | .. | .. | ..... | ........ | ........ |
| Jalapa | Nueva Segovia | 428 | 90 | 10 | 1 | 7 | .. | 1,597 | ........ | ........ |
| San Isidro | Jinotega | 390 | ... | 9 | .. | 4 | 6 | 2,019 | ........ | P. O. |
| San Miguelito | Chontales | 390 | 70 | .. | 1 | .. | 2 | 595 | Lakeport. | " |
| San Lorenzo | " | 370 | 40 | 2 | 2 | 7 | 18 | 3,312 | ........ | " |
| La Concordia | Jinotega | 353 | 98 | 9 | 1 | 18 | 4 | 2,036 | ........ | " |
| Jicaro | Nueva Segovia | 312 | 73 | 12 | 1 | 2 | 9 | 1,507 | ........ | " |
| San Pedro de Lovago. | Chontales | 327 | 42 | 6 | 1 | .. | 16 | 1,824 | ........ | " |
| Condega | Nueva Segovia | 256 | 72 | 9 | 1 | 10 | 10 | 3,392 | ........ | " |
| Puerto de Bocay | Jinotega | 250 | ... | . | .. | 2 | 21 | 1,415 | ........ | ........ |
| Dipilto | Nueva Segovia | 244 | 86 | 8 | 1 | .. | 8 | 598 | ........ | P. O. |
| Ciudad Antigua | " " | 284 | 60 | 6 | 1 | 5 | 15 | 906 | ........ | " |
| San Dionisio | Matagalpa | 280 | 24 | 7 | 1 | 5 | .. | 1,833 | ........ | " |
| Telpaneca | Nueva Segovia | 224 | 209 | 8 | 1 | 8 | .. | 4,436 | ........ | " |
| El Castillo | Chontales | 211 | ... | .. | .. | .. | .. | .... | Riverport. | " |
| Las Salinas | Rivas | 200 | 9 | .. | .. | .. | .. | .... | Seaport. | ........ |
| Palaguaguina | Nueva Segovia | 197 | 23 | 4 | 1 | .. | 3 | 1,430 | ........ | P. O. |
| Yalaguina | " " | 197 | 41 | 5 | 1 | .. | 7 | 780 | ........ | " |
| Macuelizo | " " | 176 | 30 | 4 | 1 | 3 | 8 | 680 | ........ | " |
| Totogalpa | " " | 127 | 89 | 8 | 2 | 6 | .. | 1,9 8 | ........ | " |
| Sto. Tomas | Chontales | 125 | 30 | 8 | 1 | 1 | 7 | 2,000 | ........ | " |
| Mosonte | Nueva Segovia | 118 | 43 | 7 | 1 | 4 | 4 | 893 | ........ | " |
| Murra | " " | 109 | 24 | 3 | 1 | 2 | 6 | 392 | ........ | " |
| Quilali | " " | 108 | 15 | 2 | 1 | 5 | 5 | 777 | ........ | " |
| Sta. Maria | " " | 66 | 21 | 2 | 1 | .. | 5 | 814 | ........ | " |

The principal Valleys (*Valles*) are, following the list of the statistical offices:

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Managua | Sabana Grande | 300 | Managua. |
| | Sto. Domingo | 700 | " |
| | Zambrano | 300 | " |
| | San Francisco del Carnicero | 350 | " |
| | Telpochapa | 300 | " |
| Carazo | La Conquista | 400 | Jinotepe. |
| | Taucabuya | 300 | San Marcos. |
| Granada | Las Islas | 446 | Granada. |
| | Malacatoya | 521 | " |
| Rivas | Narmimi | 500 | Belen. |
| | Esquipulas | 412 | Moyogalpa. |
| | Las Pilas | 300 | Alta Gracia. |
| Chontales | Cuapa | 600 | Juigalpa. |
| | Betulia | 912 | " |
| | Sta. Rita | 468 | San Lorenzo. |
| | Morrito | 300 | Acoyapa. |
| | El Almendro | 300 | " |
| | Radio de la Legua | 346 | Sto. Tomas. |
| | Piedra Pintada | 441 | Juigalpa |
| Leon | Los Zapatas | 1500 | Leon. |
| | San Nicolas | 800 | Santa Rosa. |
| | Salale | 368 | El Sauce. |
| | Sabana Grande | 370 | " |
| | San Antonio | 300 | " |
| | Ocotal | 350 | " |
| Chinandega | Atoya | 359 | El Viejo. |
| | Cosegüina | 313 | " |
| Nueva Segovia | San Lucas | 625 | Somoto. |
| | Cuje | 728 | Totogalpa. |
| | Amacayan | 784 | Telpaneca. |
| | Tamarindo | 418 | " |
| | Vijahual | 551 | " |
| | Pericon | 646 | " |
| | Sto. Domingo | 712 | " |
| | Carbonal | 722 | " |
| | El Covol | 392 | Condega. |
| | Estanzuela | 800 | Esteli. |
| Jinotega | Santa Cruz | 1604 | Esteli. |
| | Villa Vieja | 1145 | " |
| | Potrero Grande | 425 | " |
| | Tomahú | 413 | " |
| | Apanas | 543 | Jinotega. |
| | Sta. Maria | 385 | " |
| | Mancotal | 300 | " |
| | San Esteban | 400 | " |
| | Sisle | 512 | " |
| | Llano de Tejera | 500 | " |
| | Dantali | 664 | " |
| | Chahuite Grande y Mojon | 680 | " |
| | San Antonio | 325 | " |
| | Yale | 1300 | San Rafael del Norte. |
| | San Gabriel | 269 | " " |
| | Sabana Grande | 404 | " " |
| | Guadalupe | 346 | Matagalpa. |
| | El Hono | 362 | " |
| | Guasquali | 367 | " |
| | Las Cañas | 263 | " |
| | Samulali | 480 | " |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Jinotega | Matazano | 324 | Matagalpa |
| | Guinco | 331 | " |
| | Yucul | 408 | " |
| | Ocotal | 392 | " |
| | San Pablo | 334 | " |
| | Limones | 370 | " |
| | Molino Norte | 515 | " |
| | Apante | 350 | " |
| | Llano Grande | 582 | " |
| | Yacica | 404 | " |
| | Jucuapa arriba | 366 | " |
| | Jumaiqui | 437 | " |
| | Güiligua | 670 | Muymuy. |
| | Agua caliente | 500 | " |
| | Cangrejal | 800 | " |
| | El Ojoche | 770 | " |
| | Mal Paso | 590 | " |
| | San Jerónimo | 400 | " |
| | El Potrero | 300 | " |

Principal *Caserios* as enumerated in the official documents:

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Masaya | Nerome | 400 | Masaya. |
| | Los Trapiches | 1000 | La Victoria. |
| | Monte Redondo | 300 | " |
| | Potrero | 300 | Nindiri. |
| | San Juan | 1200 | La Concepcion. |
| Carazo | Los Potrerillos | 300 | Sta. Teresa. |
| Rivas | Los Cerros | 1200 | Rivas. |
| | Las Piedras | 600 | " |
| | Veracruz | 1000 | " |
| | El Rosario | 800 | " |
| | Popagnapa | 1000 | " |
| | La Puebla | 1400 | " |
| | La Chocolata | 300 | " |
| Chontales | San Marcos | 461 | Juigalpa. |
| | San Buenaventura | 1695 | Boaco. |
| | Boaco Viejo | 821 | " |
| | El Tule | 887 | " |
| | Sacal | 526 | " |
| | Olama | 433 | " |
| | El Rodeo | 726 | " |
| | Saguatepe | 413 | " |
| | Vejuco | 413 | " |
| | Cerro Largo | 332 | " |
| | Santa Inés | 951 | " |
| | Wirruca | 840 | " |
| | Paso de Lajas | 415 | " |
| | Tasagua y Aguasca | 1800 | " |
| | Fruta de pan | 1000 | La Libertad. |
| | El Jocote | 420 | Comalapa. |
| | La Montanita | 340 | " |
| | "Casas Dispersas" | 492 | " |
| | Montaña | 300 | San José. |
| | Montefresco | 386 | San Lorenzo. |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Chontales | Pueblo Viejo | 340 | Sto. Tomas. |
| | Alto | 346 | " |
| Leon | Tololar | 897 | Leon. |
| | Los Lechecuaos | 836 | " |
| | Paso Benito | 300 | Telica. |
| | Salitre | 311 | " |
| Chinandega | San Benito | 400 | Chinandega. |
| | Sta. Barbara | 300 | " |
| Nueva Segovia | Agua Buena | 316 | Somoto. |
| | Las Sabanas | 346 | " |
| | Ducuali | 462 | Palacaguina. |
| | Jocote | 420 | " |
| | Zapote | 351 | " |
| Jinotega | Laguna | 300 | Esteli. |
| | Potrerillos | 327 | " |
| | Bocay abajo | 350 | Puerto de Bocay. |
| Siquia | Rio Mico | 342 | Rama. |
| | Rio Siquia | 342 | " |
| Corn Island | Great Corn Island | 600 | Bluefields. |
| | Little Corn Island | 300 | " |
| GobernacionCuicuina | Cuicuina | 500 | |
| | Wany | 300 | |
| | Siuna | 600 | |
| | Tunkey | 400 | |
| Laguna de Perlas | Laguna de Perlas | 422 | |

Other Valleys are, still following official documents:

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| **Managua** | Laurel Galan | 250 | |
| | La Mica | 250 | |
| | San Benito | 200 | |
| | El Obraje | 180 | |
| Masaya | Veinte Cuatro | 200 | Tisma |
| | Los Altos | 200 | Masaya. |
| | Norome | 49 | Catarina. |
| | Pacaya | 21 | " |
| Carazo | El Aguacate | 150 | Diriamba. |
| | Buena Vista | 100 | " |
| Granada | Panaloya | 228 | Granada. |
| | La Orilla | 220 | Nandaime. |
| | Los Cocos | 118 | Granada. |
| | Ozagay | 85 | " |
| | Santa Clara | 282 | " |
| | El Arroyo | 153 | Diria. |
| | Zapatera | 64 | Granada. |
| Rivas | Sanchez | 250 | Belen. |
| | Los Angeles | 250 | Moyogalpa |
| | San Francisco | 250 | Alta Gracia. |
| Chontales | Llano Grande | 170 | Juigalpa. |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Chontales | San Francisco | 230 | Boaco. |
| | Sto. Domingo | 229 | La Libertad. |
| | Rodeo | 200 | San Lorenzo. |
| | San Ildefonso | 200 | " |
| | Rejoya | 110 | " |
| | Llano Grande | 160 | " |
| | Posoli | 105 | " |
| | Potrero Grande | 140 | " |
| Leon | Los Zarzales | 200 | Leon. |
| | Los Arcos | 80 | El Jicaral. |
| | Buena Vista | 85 | " |
| | San Juan de Dios | 95 | " |
| | El Alcaraban | 123 | " |
| | Las Pilas | 39 | " |
| | Hatillo | 200 | Santa Rosa. |
| | Chaparral | 200 | " " |
| | Las Delicias | 128 | " " |
| | Real de la Cruz | 120 | " " |
| | El Cuervo | 120 | " " |
| | El Boqueron | 150 | " " |
| | Guijalapa | 200 | " " |
| | Limay | 250 | " " |
| | El Rodeo | 200 | " " |
| | Valencia | 250 | " " |
| | San Martin | 174 | " " |
| | Guingajapa | 200 | " " |
| | La Pita | 72 | " " |
| | Mesitas | 32 | " " |
| | Las Mercedes | 150 | El Sauce. |
| Chinandega | Opico | 250 | El Viejo. |
| | Los Mayorgas | 157 | Posoltega. |
| | Jinocuagüe | 272 | Somotillo. |
| | Pueblo Viejo | 102 | " |
| | Los Huatales | 160 | " |
| | El Pilon | 156 | " |
| | El Obraje | 253 | " |
| | Espino | 149 | Santo Tomas. |
| | Obitos | 209 | " " |
| | Ojo de Agua | 155 | " " |
| | Vado Ancho | 182 | " " |
| | Los Araditos | 206 | San Juan de Cinco Pinos. |
| | El Zapote | 111 | " " |
| | El Cerro | 115 | " " |
| | Pavon | 171 | " " |
| | Espino | 101 | " " |
| | Zacaton | 217 | " " |
| | Zarzal | 98 | " " |
| | Montaña | 160 | San Pedro. |
| | Plan Grande | 275 | " " |
| | Ocotillo | 150 | " " |
| | Vijahna | 170 | " " |
| | Panal | 150 | " " |
| | Talquezal | 83 | San Francisco. |
| | El Terrero | 181 | " " |
| | Nancital | 252 | " " |
| | La Concepcion | 85 | Villanueva |
| | Los Encuentros | 104 | " |
| | Los Achotes | 208 | " |
| Nueva Segovia | Santa Teresa | 267 | Somoto. |
| | Santa Isabel | 185 | " |
| | El Espino | 198 | " |
| | El Angel | 267 | " |
| | Ycalupe | 148 | " |
| | Talquezal | 200 | " |
| | Sta. Rosa | 95 | " |
| | San Juan | 121 | " |
| | El Potrero | 149 | " |
| | Sta. Barbara | 124 | " |
| | San Francisco | 201 | " |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Nueva Segovia...... | Terrero Grande......... | 213 | Totogalpa. |
| | Sto. Domingo........... | 284 | “ |
| | Sabana Grande......... | 276 | “ |
| | Verapaz............... | 144 | “ |
| | Cayantú............... | 146 | “ |
| | Rancho................ | 269 | Telpaneca. |
| | San Juan.............. | 160 | “ |
| | El Suyatal............ | 58 | Macuelizo. |
| | Calabazeras........... | 29 | “ |
| | Amatillo.............. | 87 | “ |
| | Apansiguel............ | 200 | Mosonte. |
| | Santa Ana............. | 59 | Limay. |
| | San Jeromino.......... | 58 | “ |
| | San Ramon............. | 205 | Condega. |
| | San Diego............. | 284 | “ |
| | Santa Rosa............ | 238 | “ |
| | El Jocote............. | 220 | “ |
| | Potrerillos........... | 260 | “ |
| | Santa Lucia........... | 162 | “ |
| | Culce................. | 107 | “ |
| | Guayucali............. | 269 | “ |
| | Algodonal............. | 111 | “ |
| | Calpules.............. | 179 | Pueblo Nuevo. |
| | Mata Palo............. | 19[illegible] | “ “ |
| | Para.................. | 137 | “ “ |
| | Palagua............... | 150 | “ “ |
| | Cofradia.............. | 122 | “ “ |
| | Hatillos.............. | 277 | “ “ |
| | Sabana Grande......... | 256 | “ “ |
| | Roble................. | 111 | “ “ |
| | San Francisco......... | 112 | “ “ |
| | Peñazco............... | 133 | “ “ |
| | Rio Abajo............. | 120 | “ “ |
| | Guisuli............... | 190 | Mosonte. |
| | Los Arados............ | 90 | “ |
| | Sapote................ | 90 | “ |
| | Calpules.............. | 29 | Ciudad Antigua. |
| | Aradito............... | 27 | “ “ |
| | La Jagua.............. | 33 | “ “ |
| | Rancho................ | 23 | “ “ |
| | San Fernando.......... | 100 | “ “ |
| | Susucayan............. | 118 | Jicaro. |
| | Casas Viejas.......... | 146 | “ |
| | El Carbon............. | 120 | Jalapa. |
| | Tostoli............... | 256 | “ |
| | La Puerta............. | 84 | “ |
| | El Limon.............. | 200 | “ |
| | El Trapiche........... | 205 | “ |
| | Solonli............... | 98 | “ |
| | Totecosinte........... | 211 | “ |
| | E Plantel............. | 101 | Murra. |
| | Los Pozos............. | 57 | “ |
| | Las Cruces............ | 96 | Quilali. |
| | Caulatú............... | 70 | “ |
| | Jabalies.............. | 129 | “ |
| | Trincheras............ | 83 | “ |
| | Marañonal............. | 90 | “ |
| Jinotega........... | San Pedro............. | 211 | Esteli. |
| | Isidrillo............. | 220 | “ |
| | Cerritos.............. | 110 | “ |
| | Funosa................ | 150 | “ |
| | Pastoreo.............. | 215 | “ |
| | Carrizo............... | 180 | “ |
| | Regadillo............. | 157 | “ |
| | Jicaro................ | 160 | “ |
| | San Rafael & Labrancita | 223 | “ |
| | Labranzas............. | 285 | “ |
| | Rodeo................. | 266 | “ |
| | San Roque............. | 237 | “ |
| | San Antonio........... | 152 | “ |
| | Hatú.................. | 183 | “ |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Jinotega | San Lorenzo | 96 | Trinidad. |
| | Licoroy | 101 | “ |
| | Cañada | 153 | “ |
| | Espinal | 136 | “ |
| | Tomabú | 173 | “ |
| | Espino | 136 | “ |
| | Rosario Viejo | 125 | “ |
| | El Hornillo | 140 | “ |
| | Ollanca | 152 | “ |
| | El Naranjo | 140 | “ |
| | Rincon Largo | 140 | “ |
| | San Francisco | 137 | “ |
| | Caña y Vopal | 230 | “ |
| | Robles | 298 | Jinotega. |
| | Barranco Blanco | 184 | “ |
| | Jocomico | 269 | “ |
| | Tomayunca | 200 | “ |
| | Yanque | 150 | “ |
| | Naranjo | 180 | “ |
| | Mesitas | 150 | “ |
| | Matazano | 110 | “ |
| | Dominical | 130 | “ |
| | Buculmay | 160 | “ |
| | Santa Barbara | 115 | “ |
| | Lipululo | 100 | “ |
| | Tomatoya y Pilas | 150 | “ |
| | Lomas | 225 | “ |
| | Namangüia | 292 | San Rafael del Norte. |
| | San Marcos | 297 | “ “ “ “ |
| | Somi | 275 | “ “ “ “ |
| | Yupali | 100 | La Concordia. |
| | Mesas | 142 | “ |
| | Llano Largo | 166 | “ |
| | Lajas | 129 | “ |
| | Los Potrerillos | 96 | “ |
| | Guiscanal | 78 | “ |
| | Guiquizque | 93 | “ |
| | Mora y Chichigues | 209 | “ |
| | Camalote | 38 | “ |
| | Vijagual | 167 | “ |
| | La Bolsa y El Plan | 67 | “ |
| | La Pavona | 134 | “ |
| | Coyolar | 84 | “ |
| | Quebrada Seca | 200 | San Isidro. |
| | San Andres | 200 | “ |
| | Cidras | 250 | “ |
| | Rodeo Grande | 270 | “ |
| | Santa Cruz | 40 | Bocay. |
| | Cabuyal | 25 | “ |
| Matagalpa | Laguna Seca | 143 | Matagalpa. |
| | Piedra Colorada | 177 | “ |
| | Ciare | 139 | “ |
| | Susuli | 179 | “ |
| | San José | 193 | “ |
| | Azancar | 146 | “ |
| | Pueblo Viejo | 247 | “ |
| | Sabana Grande | 228 | “ |
| | San Marcos | 242 | “ |
| | Rancho | 227 | “ |
| | Tejas | 223 | “ |
| | Yaule arriba | 212 | “ |
| | San Salvador | 268 | “ |
| | Los Cocos | 148 | Metapa. |
| | Las Limas | 144 | “ |
| | Totumblita | 144 | “ |
| | Calpulas | 138 | “ |
| | Macuelizo | 144 | “ |
| | Trujillo | 144 | “ |
| | Casas Viejas | 192 | “ |
| | El Chaguite | 168 | “ |
| | Las Mesas | 150 | “ |

| Department. | Name. | Population. | Jurisdiction. |
|---|---|---|---|
| Matagalpa.......... | Montaña.............. | 201 | Terrabona. |
| | Rincon.............. | 213 | " |
| | Apatua .............. | 169 | " |
| | San Antonio.............. | 108 | " |
| | El Barro .............. | 195 | Esquipulas. |
| | Piedras Grandes......... | 200 | " |
| | Montaña.............. | 220 | " |
| | Jamaica.............. | 100 | Sebaco. |
| | Magulca.............. | 100 | " |
| | Rio Viejo.............. | 100 | " |
| | Carizo.............. | 183 | San Dionisio. |
| | Carrizal.............. | 265 | " |
| | Pacaya.............. | 255 | " |
| | Tempisque.............. | 122 | " |
| | Ocote.............. | 278 | " |

To give an exact idea of Nicaragua, the following table completes the list of the existing Caserios, as stated in official documents:

## Department of Managua.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| San Andres. ... | 150 | | Los Narvaez .... | 150 | |
| Nandayosa...... | 100 | | San Cayetano . . | 130 | |
| El Carmen...... | 150 | | Los Sanchez .... | 100 | |
| Las Filas ....... | 100 | | Tastoloya....... | 180 | |
| San Juan........ | 150 | | Los Gutierrez... | 130 | |
| Santa Ana...... | 80 | | Tragalegua...... | 100 | |
| San Joaquin .... | 70 | | Jacobo . . .... | 60 | |
| San Pablo ...... | 100 | | Las Mercedes... | 80 | |

## Department of Masaya.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Los Trapichitos. | 150 | Nandasmo. | El Portillo...... | 100 | La Victoria. |
| Monte Redondo. | 300 | La Victoria. | El Volcan ...... | 200 | Nindiri. |
| San Ignacio .... | 150 | La Concepcion. | Ticuantepe. .... | 200 | " |
| El Llano........ | 250 | Masaya | San Caralampio. | 200 | La Concepcion. |
| Los Rincones... | 200 | Masatepe, | Los Moncados... | 250 | " |
| El Arenal....... | 150 | " | | | |

## Department of Granada.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Malacos ........ | 138 | Granada. | Jiguelite........ | 48 | Granada. |
| El Capulin...... | 274 | " | La Granadilla... | 200 | Nandaime. |
| La Laguna...... | 138 | " | Santa Juana.... | 50 | " |
| San Caralampio. | 19 | Nandaime. | San Ramon..... | 30 | " |
| Mombacho...... | 65 | Granada. | | | |

## Department of Carazo.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| El Ojochal...... | 50 | Jinotepe | Aragon ......... | 100 | Jinotepe. |
| Las Cañadas.... | 100 | Diriamba. | Tecomapa ...... | 60 | " |
| Las Cinco Esquinas........... | 100 | San Marcos. | Abompoa ....... | 60 | Diriamba. |
| El Abra ........ | 50 | Jinotepe. | Santa Cruz..... | 230 | Sta Teresa. |
| El Zapotal ..... | 50 | " | Las Cruces...... | 50 | " |

## Department of Rivas.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Ostional ........ | 135 | San Juan del Sur | El Limonal..... | 133 | Buenos Aires. |
| Sonzapote....... | 36 | " " | El Menco....... | 175 | " |
| La Cuesta....... | 96 | " " | El Cocal ....... | 196 | " |
| Papayal. ....... | 78 | " " | San Marcos ..... | 180 | Belen. |
| Palenque ....... | 96 | San Jorge. | Nata de Caña... | 200 | " |
| San Antonio .... | 96 | " | San Isidro...... | 200 | Rivas. |
| Chilate ......... | 110 | Moyogalpa. | El Abompoa.... | 267 | Potosi. |
| La Concepcion.. | 210 | " | Calle de Enmedio | 247 | " |
| San José del Sur | 130 | " | El Limonal..... | 48 | " |
| San José del Norte......... | 200 | Alta Gracia. | Paso de Piedra.. | 62 | " |
| Balbué.......... | 150 | " | Sabana Grande.. | 136 | " |
| Urbaite......... | 100 | " | Pijijé........... | 130 | " |
| | | | Las Lajas ....... | 132 | " |

## Department of Leon.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Platanal........ | 128 | Leon. | El Tambor...... | 68 | Santa Rosa. |
| Avangasca...... | 237 | " | El Palito ...... | 59 | " |
| Barro........... | 250 | " | El Garrobero.... | 108 | " |
| Los Ranchos.... | 200 | " | Tierra nova..... | 24 | " |
| Hato Grande.... | 225 | " | Ojo de agua..... | 209 | Subtiava. |
| El Convento.... | 250 | " | La Platera...... | 150 | " |
| Chacra seca .... | 221 | " | El Terrero...... | 100 | " |
| Tolapa ......... | 200 | " | El Chagüe...... | 125 | " |
| Tolapita ........ | 120 | " | Cerro Coyote.... | 84 | " |
| Cerritos ........ | 100 | " | El Parral ...... | 135 | El Sauce |
| Tierra blanca... | 100 | " | Petaquillas...... | 163 | " |
| Las Tablas...... | 50 | El Jicaral. | Tololo .......... | 230 | " |
| La Calera....... | 60 | " | El Guayabo..... | 135 | " |
| Nance dulce.... | 150 | " | El Jicarito ...... | 286 | Telica. |
| El Tule......... | 200 | " | Las Lajas....... | 150 | " |
| Bordos ......... | 100 | Santa Rosa. | Mojon .......... | 183 | " |
| San Pedro...... | 250 | " | Los Caraos ..... | 147 | " |
| Mal Paso....... | 100 | " | La Platera...... | 150 | Guezalquague. |
| Mozotal........ | 150 | " | Cuatro Esquinas | 125 | " |
| El Picacho..... | 135 | " | El Paseante..... | 250 | " |
| El Coyol........ | 115 | " | Las Tablas...... | 144 | Achuapa. |
| Las Cañas ...... | 100 | " | Las Delicias..... | 158 | " |
| Corralito........ | 78 | " | Lagartillo ...... | 125 | " |
| El Jicote ....... | 105 | " | | | |

## Department of Chinandega.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| San José de Mapachin | 200 | Chinandega. | El Guanacastal | 113 | Chichigalpa. |
| San José de las Lajas | 80 | " | El Bosque | 95 | Posoltega. |
| Sasama | 80 | El Viejo. | Monte San Juan. | 107 | " |
| Tonolá | 60 | " | El Medrano | 94 | " |
| Aguacate | 69 | " | Valle Viejo | 107 | " |
| El Pelisco | 114 | Chichigalpa. | La Danta | 140 | Somotillo. |
| Los Placeres | 48 | " | Palo Grande | 170 | " |
| El Alto de Talpetate | 57 | " | Pavanita | 160 | " |
|  |  |  | Consulta | 69 | " |

## Department of Chontales.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Santa Rita | 261 | Jingalpa. | Tomatoya | 100 | San Jose. |
| El Potrero | 154 | " | Pajarito | 100 | " |
| San Antonio | 295 | " | San Bartolo | 29 | " |
| La Merced | 40 | " | Buena Vista | 100 | " |
| El Hatillo | 30 | " | San Francisco | 80 | " |
| El Potrerillo | 286 | Boaco. | Potrero Cerrado. | 216 | S. Pedro de Lóvago. |
| La Pita | 210 | " | La Pintada | 77 | " " |
| La Laguna | 177 | " | Banadi | 54 | " " |
| El Arado | 80 | Acoyapa. | El Coyol | 76 | " " |
| Guanacastillo | 150 | " | Muluco | 59 | " " |
| San Lucas | 120 | " | Palguazán | 139 | " " |
| La Manga | 80 | " | Palo Solo | 127 | " " |
| Maderas Negras. | 80 | " | Llano de los Pedros | 243 | " " |
| Madera de Aguilares | 70 | " | Casa de piedra | 54 | " " |
| Banadi | 100 | " | Cunagua | 46 | " " |
| El Avispero | 60 | " | El Charco | 49 | " " |
| San Ubaldo | 100 | " | Los Meleros | 109 | " " |
| San José | 30 | " | El Juste | 54 | " " |
| San Agustin | 60 | " | La Caballada | 63 | " " |
| Agua Buena | 50 | " | Lóvago Viejo | 52 | " " |
| El Zapote. | 199 | La Libertad. | La Palma | 50 | " " |
| Carca | 140 | " | San Pio | 80 | San Lorenzo. |
| Carquita | 111 | " | Sonzapote | 75 | " |
| Cosmatillo | 120 | " | Carrizal | 60 | " |
| Caña de Castilla | 218 | " | Cuizaltepe | 40 | " |
| Cerro Grande | 98 | Camoapa. | Ranchos | 60 | " |
| La Corona | 115 | " | Cascabel | 96 | " |
| La Calera | 115 | " | Sierras | 70 | " |
| Tolimapa | 81 | " | La Joya | 58 | " |
| Mombacho | 225 | " | Tierra blanca | 96 | " |
| Las Salinas | 150 | " | Potreros | 160 | " |
| San Isidro | 125 | " | Portillo | 45 | " |
| La Palma | 100 | " | Acote | 15 | " |
| Matamba | 120 | " | Guabas | 30 | " |
| Las Lajas | 100 | " | San Agustin | 28 | " |
| Tesorero | 195 | " | Incendio | 30 | " |
| El Roblar | 125 | " | Laguna | 40 | " |
| El Pochote | 220 | Comalapa. | Balsamo | 70 | " |
| San Francisco | 140 | " | El Peñon | 137 | San Miguelitis. |
| La Concepcion | 280 | " | Terron colorado. | 68 | " |
| San Antonio | 120 | " | Atillas | 162 | Santo Tomas. |
| Cangrejal | 180 | " | Los Molejones | 133 | " |
| El Aguégnó | 100 | " | Hamacas | 103 | " |
| El Seno | 100 | San Jose. | Santa Clara | 174 | " |
| Cañada | 200 | " | Jicarito | 271 | " |
| Barro | 100 | " | Melchor | 80 | San Carlos. |
| Palancas | 80 | " | Tule | 50 | " |
| Caña Vieja | 90 | " | Islas de Solentiname | 150 | " |
| Hatillo | 110 | " |  |  |  |
| Majada | 50 | " |  |  |  |

## Department of Matagalpa.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| San Francisco... | 150 | Matagalpa...... | Hatillo ......... | 46 | Terrabona. |
| Buena Vista..... | 201 | " | Caserios . ...... | 296 | " |
| Cumplida....... | 208 | " | Las Pilas ........ | 95 | Esquipulas. |
| Yauie........... | 191 | " | Santa Cruz...... | 25 | Sebaco. |
| Escaleras....... | 138 | " | Hatillo.......... | 80 | " |
| Cacao........... | 152 | " | Molino.......... | 80 | " |
| Tejerina......... | 194 | " | Almirante....... | 25 | " |
| Quebrada Honda | 156 | " | Valle abajo..... | 88 | " |
| San Antonio...... | 96 | Metapa. | Estero.. .... | 30 | " |
| Coyol........... | 102 | " | Rio Nuevo...... | 60 | " |
| Chaguitillo...... | 120 | " | Paso Real....... | 24 | " |
| San Esteban.... | 102 | " | Chaguitillo ..... | 50 | " |
| La Pitahaya..... | 100 | " | Apamico........ | 30 | " |
| El Esquirin..... | 50 | Muymuy. | Cacao........... | 25 | " |
| Bonetes ........ | 78 | Terrabona. | Quebrachal...... | 50 | " |
| Poyacuca........ | 88 | " | Instancia........ | 60 | " |
| Santa Rosa...... | 96 | " | Tamarindo...... | 90 | " |
| Piedras Grandes. | 37 | " | | | |

## Department of Jinotega.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Las Lajas ....... | 131 | Esteli. | Gualaza ........ | 35 | Jinotega. |
| Jasmin.......... | 84 | " | Corral de piedra. | 80 | " |
| La Pita ......... | 56 | " | Horno y Hatillo. | 80 | " |
| La Joya......... | 62 | " | Limon .......... | 100 | " |
| Pintadas........ | 81 | " | Yauli ........... | 60 | " |
| Limon .......... | 118 | " | Sta. Ana........ | 50 | " |
| Ferrero......... | 80 | " | El Vijagual.... | 82 | San Rafael del |
| Calabaza........ | 80 | " | | | Norte. |
| Chacara......... | 62 | " | El Arco ........ | 92 | " |
| La Cruz......... | 80 | " | Concepcion ..... | 70 | " |
| Carao........... | 140 | " | Quebrada de | | |
| Laguna ......... | 108 | " | arriba ........ | 83 | " |
| Cañada ......... | 63 | " | Rinconada ...... | 173 | " |
| Ajenjal ......... | 109 | " | Potrerillos ...... | 60 | " |
| Santa Clara..... | 114 | " | Vallecillo....... | 50 | " |
| Yareuli ......... | 60 | " | Pavona ......... | 41 | " |
| Sontule[illegible]....... | 199 | " | San José........ | 50 | La Concordia. |
| La Caña ........ | 199 | " | Los Pericos ..... | 63 | " |
| Blandon ........ | 118 | " | Yeluca.......... | 27 | " |
| Rodeo Grande... | 81 | " | Quebrada arriba | 27 | " |
| San José........ | 107 | " | Santa Rosa...... | 180 | San Isidro. |
| Pital .. ...... | 266 | " | Sabanetas....... | 100 | " |
| Agua Fria....... | 215 | " | Mal Paso........ | 150 | " |
| Montaña........ | 270 | " | Rio Viejo........ | 90 | " |
| Lagunilla ....... | 232 | " | El Bonete....... | 89 | " |
| Pacaya.......... | 283 | " | Guanacaste ..... | 100 | " |
| Despoblado ..... | 208 | " | Bocay abajo..... | 350 | Puerto de Bocay. |
| Espinal... ..... | 100 | " | Raiti y Burimate | 60 | " |
| Palmita......... | 85 | " | Lacus.......... | 10 | " |
| Coloncito ....... | 80 | Trinidad. | Sisintialca ...... | 60 | " |
| Mojon .......... | 76 | " | Sisayeri......... | 50 | " |
| Llano largo ..... | 60 | " | Turuguas........ | 25 | " |
| Mesa Alta....... | 52 | " | Craosirpe ....... | 25 | " |
| La Loma ....... | 49 | " | Quiplapisne..... | 25 | " |
| Las Animas..... | 36 | " | Balana ......... | 80 | " |
| Laguna.......... | 38 | " | Cajurú ......... | 60 | " |
| Mechapa ........ | 84 | " | Azan .......... | 25 | " |
| Cuajinicuil..... | 88 | " | Nahuahuas...... | 20 | " |
| Concepcion ..... | 36 | " | Colon y Caserios. | 70 | " |
| Rosario Nuevo .. | 96 | " | Holuaskin...... | 50 | " |
| Monte Verde.... | 97 | " | Wamblan y | | " |
| Pacaya.......... | 65 | " | Poteca,........ | 30 | " |
| El Cacao ....... | 66 | " | Quá ........... | 30 | " |
| El Horno ....... | 110 | " | Hamaca......... | 15 | " |
| Los Chahuites... | 100 | " | Oculi .......... | 25 | " |
| Jigüina......... | 54 | Jinotega. | Wina .......... | 40 | " |
| Cal............. | 50 | " | Atiguas........ | 25 | " |
| Pita ............ | 59 | " | Walcran ....... | 25 | " |
| Chahuites ...... | 39 | " | | | |

## Department of Nueva Segovia.

| Name. | Pop. | Jurisdiction. | Name. | Pop. | Jurisdiction. |
|---|---|---|---|---|---|
| Zapote | 54 | Somoto. | Los Leones | 7 | Ciudad Antigua. |
| Jicarito | 70 | " | Santa Clara | 80 | " |
| Quiebrahacha | 72 | " | San Lorenzo | 50 | " |
| Portilla de la Cruz | 37 | " | Achuapa | 70 | " |
| Coyol | 30 | " | Salamaji | 21 | " |
| Jobo | 68 | " | Arenal | 180 | Jicaro. |
| Gaybupabillas | 112 | " | Sabana grande | 77 | " |
| Cosmapa | 24 | " | Callejon | 49 | " |
| Salamar | 60 | " | Encinos | 176 | " |
| Carranza | 84 | " | Muyuca | 144 | " |
| Ñacascolo | 73 | " | Lajarumica | 110 | " |
| Limon | 103 | " | Las Vueltas | 126 | " |
| Sapotillo | 65 | " | Ologalpa | 33 | " |
| Melonar | 43 | " | Sasacali | 36 | " |
| Matasano | 131 | " | Socorro | 10 | Murra: |
| Cascabel | 100 | " | Montañita | 11 | " |
| Cacanli | 161 | " | Las Carretas | 27 | " |
| Sonis | 29 | " | Candelaria | 18 | " |
| La Guayaba | 107 | " | Camalotal | 22 | " |
| Mal Paso | 80 | " | Las Animas | 37 | " |
| Matazano | 80 | " | Panali | 41 | Quilali. |
| Inali | 90 | " | Guana | 20 | " |
| El Naranjo | 128 | " | Monte Redondo | 47 | " |
| Coyolitos | 96 | " | Cuntil | 42 | " |
| Moropotis | 25 | " | Teucintal | 81 | " |
| Agua Sucia | 34 | " | Estanzuela | 52 | Limay. |
| San Antonio | 181 | Yalagüina. | Guailo | 68 | " |
| Cerro Grande | 124 | " | San Lorenzo | 98 | " |
| Samascunda | 115 | " | La Flor | 82 | " |
| Chaguite grande | 58 | " | Tranqueras | 17 | " |
| Trapichito | 60 | " | Horno | 27 | " |
| Rio Abajo | 62 | " | Quebradas | 42 | " |
| La Tuna | 57 | " | Colocondo | 53 | " |
| El Potrero | 77 | Ocotal. | El Naranjo | 24 | " |
| El Jobo | 32 | " | Pedernal | 9 | " |
| Ococona | 33 | Macuelizo. | San Roque | 84 | " |
| Encino | 50 | " | Tablas | 89 | " |
| Brufil | 59 | " | Capulin | 45 | " |
| Calpules | 27 | " | Carrizal | 18 | " |
| Tragaleguas | 26 | " | Guarrimo | 9 | " |
| Mesa de Alcayan | 60 | " | Mateare | 16 | " |
| El Paraisito | 40 | " | Bumbum | 35 | " |
| Ocote Seco | 40 | " | Chacara | 10 | " |
| Zapotal | 126 | Santa Maria. | Palmar | 31 | " |
| La Joya | 198 | " | Pedernal | 39 | Condega. |
| Coyolar | 161 | " | Tule | 83 | " |
| Calpules | 91 | " | Peñazco | 43 | " |
| Aguacate | 172 | " | San José | 136 | " |
| Caracol | 53 | Mosonte. | Santa Teresa | 47 | " |
| El Rodeo | 31 | " | Laguna | 97 | " |
| Las Huertas | 72 | " | Rodeo | 64 | " |
| San Antonio | 49 | " | Rio Arriba | 159 | " |
| Dipilto Viejo | 44 | Dipilto | Labranza | 192 | " |
| Horno | 28 | " | Cacala | 28 | " |
| Apali | 21 | Ciudad Antigua. | Carao | 95 | Pueblo Nuevo. |
| Guineo | 103 | " | San José | 56 | " |
| Zapote | 20 | " | Soncuan | 55 | " |
| Cucharas | 6 | " | Calera | 63 | " |
| Ramos | 15 | " | Limon | 132 | " |
| Sabanetas | 15 | " | Guasimo | 122 | " |
| Matazano | 13 | " | Casuali | 76 | " |
| Tablazon | 9 | " | San Antonio | 83 | " |
| El Carbon | 22 | " | Cerro Grande | 66 | " |
| Santa Rosa | 8 | " | La Milla | 31 | " |

## Department of Zelaya.

| Name. | Pop. | Jurisdiction. |
|---|---|---|
| San Vicente | 58 | Gob. Laguna de Perlas. |
| El Palenque | 118 | " |
| Reyquipura | 188 | " |
| Cacavila | 87 | " |
| Punta de machete | 45 | " |
| Jalova | 123 | " |
| Brow Bank | 100 | " |
| Tasbapowine | 204 | " |
| Saw Mill | 111 | Gob. Warva. |
| Clyna | 57 | " |
| Carafa | 88 | " |
| Kiah | 9 | " |
| Binly | 57 | " |
| Tuapy | 120 | " |
| Kinkira | 164 | " |
| Siusin | 56 | " |
| San Jacinto | 250 | Gob. Punta Gorda |
| El Almacen | 100 | " |
| Punta Gorda | 200 | " |
| Cun | 138 | Com. Gracias a Dios |
| Wonla | 180 | " |
| Sanpuca | 267 | " |
| Ulnas | 183 | " |
| Sanlola | 46 | " |
| Leimus | 49 | " |
| Bulsirpi | 41 | " |
| Barra de Prinzapolca | 78 | Dis. Prinzapolca |
| Halhua | 181 | " |
| Cuculaya | 216 | " |
| Zayasixa | 225 | " |
| Wanta | 77 | " |
| Comualta | 182 | " |
| Walpasixa | 104 | " |
| Tawan Tara | 7 | " |
| Wanclua | 18 | " |
| Cuicuinita | 200 | Gob. Cuicuina. |
| Tungla | 150 | " |

| Name. | Pop. | Jurisdiction. |
|---|---|---|
| Ocanguas | 100 | Gob. Cuicuina. |
| Pis-Pis | 100 | " |
| Dos Bocas | 108 | Gob. Rio Grande |
| Palzaguas | 65 | " |
| Barra de Rio Grande | 112 | " |
| Sinquista | 25 | " |
| Cucaraguala | 47 | " |
| Sisicuas | 99 | " |
| Quepi | 54 | " |
| Sandy Bay | 135 | " |
| Walpa | 24 | " |
| La Luz | 104 | " |
| Rio Rama | 284 | Dis. Siquia. |
| Bajo San Juan.<br>San Jacinto<br>El Almacen | 500 | Com. S. Juan del Norte. |
| Cabo Gracias á Dios<br>Crapagnia<br>Belurana<br>Sandi Bay | 1,134 | Com. Gracias á Dios. |
| Ilaya | 106 | " |
| Clucli | 299 | " |
| Seven Creek | 116 | " |
| Sawa | 62 | " |
| Bum | 272 | " |
| Andreas | 241 | " |
| Rayapura | 66 | " |
| Saclin | 262 | " |
| Pransa | 56 | " |
| Bucbuc | 109 | " |
| Umbra | 138 | " |
| Naguanas | 35 | " |
| Cajuro | 135 | " |
| Balana | 65 | " |
| Wailaca | .. | " |
| Pulpa | .. | " |
| Daca | .. | " |
| San Ramon | .. | " |

The people of Nicaragua are distributed in :

| | | | | | |
|---|---|---|---|---|---|
| 155 | communities, | each with | 50 | or | less inhabitants. |
| 248 | " | " | 50 | to | 100 " |
| 383 | " | " | 100 | " | 250 " |
| 157 | " | " | 250 | " | 500 " |
| 62 | " | " | 500 | " | 1,000 " |
| 16 | " | " | 1,000 | " | 1,500 " |
| 11 | " | " | 1,500 | " | 2,000 " |
| 8 | " | " | 2,000 | " | 3,000 " |
| 9 | " | " | 3,000 | " | 5,000 " |
| 3 | " | " | 5,000 | " | 7,500 " |
| 2 | " | " | 7,500 | " | 10,000 " |
| 2 | " | " | 10,000 | " | 15,000 " |
| 1 | " | " | 25,000 | | " |
| 1 | " | " | 45,000 | | " |

Total, 1,058 communities, with 423,199 inhabitants.

[1] This figure may be an error of the census. [2] See first note. [3] This number of houses may also be a mistake.

Studying the census lists the reader will find a great number of anomalies. There are cities, like San Juan del Sur and Ciudad America, and towns like Realejo and Trinidad, with a very reduced population (Realejo not having more than 73 inhabitants); and, on the other hand, caserios like San Buenaventura, Tasagua y Aguasca, La Pueblo, and five others, with over 1,000 inhabitants, and villages liks Subtiava and Sauce[1] with over 7,500 inhabitants.

Stranger still is the comparative small population in some cities, as Granada[2] with 4,494 houses and only 9,086 inhabitants, or Rivas[3] with 1,510 houses and only 3,800 individuals, while other cities have comparatively a very dense population, like Leon with 45,000 people in 4,570 houses, Managua with 25,000 persons in 3,030 houses, El Sauce with 7,500 inhabitants in 500 houses, Juigalpa with 2,796 people in 150 houses, and El Viejo with 4,021 people in 131 houses.

The following table exhibits the relative numbers of Indians of pure blood and of Ladinos (who comprise white people, negroes, zambos, mestizos, mulattoes and other colored population), and also the morality and mortality of population:

| Departments. | Inhabitants. | Communities. | Births. | | | | | Deaths. | | | | | Difference. Augmentation. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ladinos. | Indians. | Illegitimate. | Legitimate. | Total. | Ladinos. | Indians. | Adults. | Children. | Total. | |
| Leon | 87,772 | 87 | 1115 | 112 | 622 | 605 | 1227 | 377 | 103 | 176 | 178 | 480 | 747 |
| Managua | 42,460 | 32 | 580 | 52 | 261 | 372 | 632 | 262 | 28 | 117 | 71 | 290 | 342 |
| Chontales | 40,387 | 151 | 716 | 497 | 461 | 752 | 1213 | 216 | 227 | 160 | 183 | 448 | 770 |
| Jinotega | 37,653 | 185 | 1788 | 843 | 889 | 1712 | 2631 | 764 | 572 | 494 | 493 | 1336 | 1295 |
| Nueva Segovia | 32,642 | 229 | | | | | | | | | | | |
| Chinandega | 34,614 | 62 | 563 | 50 | 321 | 292 | 613 | 360 | 48 | 153 | 151 | 408 | 205 |
| Masaya | 33,869 | 27 | 233 | 562 | 396 | 399 | 795 | 110 | 346 | 120 | 221 | 456 | 339 |
| Matagalpa | 29,895 | 103 | 533 | 455 | 245 | 735 | 988 | 206 | 94 | 57 | 116 | 300 | 688 |
| Rivas | 25,883 | 50 | 539 | 146 | 396 | 289 | 685 | 247 | 35 | 127 | 81 | 282 | 403 |
| Granada | 18,938 | 22 | 756 | 159 | 597 | 318 | 915 | 353 | 55 | 124 | 156 | 408 | 507 |
| Carazo | 18,545 | 21 | 257 | 264 | 240 | 281 | 521 | 96 | 94 | 62 | 66 | 150 | 331 |
| | 402,658 | 969 | 7080 | 3140 | 4427 | 5755 | 10,220 | 2991 | 1602 | 1520 | 1666 | 4583 | 5627 |

In this table, for want of data, the entire population of the Atlantic coastland, 89 communities with 20,541 inhabitants, has been excluded.

In comparing this census with the above demographic table, which embraces the entire year of 1896, and which is also made out of official data, new abnormalities appear. Not counting the comparatively low death rate and the widely differing and unequal augmentation of the people in different departments, the whole population appears in the census as too small and seldom in correspondence with the relations of births and deaths.

Each Department is governed by a "*Gefe politico,*" who, at the same time, is "*Sub-delegado de Hacienda,*" "*Inspector-General de Instruccion publica,*" "*Gete de Estadistica,*" and, with the exception of Managua, Granada and Leon, also "*Comandante de Armas.*" The Departments are sub-divided into cities (*ciudades*), towns (*villas*), villages (*pueblos*), valleys (*valles*) and *caserios.* The first three of these are further sub-divided into "*cantones municipales*" and "*cantones electorales.*" The same three divisions have municipal boards (*juntas municipales*). From the military standpoint the Republic is divided into "*gobernaciones departamentales,*" "*mayorias de plaza*" and "*comandancias locales.*" Besides each economic district has an "*Administrador de Rentas fiscales,*" and each judicial district one or more judges of first instance for civil matters, and one or more for criminal matters.

Since 1896 Nicaragua, with Honduras and Salvador, has been a State of the *Republica Mayor de Centro-America.* This new federation is represented for its exterior relations by a board called "Dieta," of three, one of whom is appointed by the legislature of each State. At the same time a substitute for each is designated. Each State by itself has a representative government, with alternating official terms, the powers of which are divided between legislative, executive and judicial branches. The Congress of Nicaragua is composed of 24 deputies, who meet generally each year in August for 60 consecutive sessions. The executive power of Nicaragua is exercised by a President elected directly for a term of four years.

*"Fomento,"* a Minister of *"Hacienda,"* a Minister of *"Guerra y Marina,"* and a Minister of *"Instruccion publica."* The President is also General-in-Chief of the Army. The judicial power is vested in a Supreme Court of Justice, in two Chambers of Second Instance and in judges of inferior tribunals. The present President, General Santos J. Zelaya, whose first term ended on the first of February, 1898, has been elected for a second term.

His cabinet and the other chief officers of State are as follows:

| | |
|---|---|
| General Erasmo Calderon | Minister of Interior, Police, etc., Primier. |
| Engineer José Antonio Roman | " " Public Works. |
| Señor Enrique C. Lopez. | " " Finance and Commerce. |
| General Erasmo Calderon | " " War and Navy. |
| Señor J. Muñoz | " " Fomento, Acting. |
| Señor T. Castillo | Director-General of Post and Telegraph. |
| Señor Tiburcio G. Bonilla | President of the Supreme Court. |

Other important authorities are the *Gefes politicos,* or Governors, of the different Departments, as:

| | |
|---|---|
| General Domingo Lacayo, Xerez | for Carrazo. |
| Col. Feliz Pedro Zelaya, | " Chinandega. |
| Col. Carlos Zubiria, | " Chontales. |
| General Juan Bodan, | " Granada. |
| General Nicasio Vazquez, | " Leon. |
| Francisco Guerrero, | " Managua. |
| Dr. José Perez S., | " Masaya. |
| General Rullings, | " Matagalpa. |
| J. Padilla, | " Neuva Segovia. |
| Gerardo Barrios, | " Rivas. |
| General Pablo Reyes | " Zalaya. |

The Captains of the Ports are:

| | |
|---|---|
| Col. D Estrada | For Corinto. |
| Manuel Antonio Aguilar | " San Juan del Sur. |
| E. Espinoza | " San Juan del Norte. |

## PUBLIC INSTRUCTION.

In 1890 there were 263 primary and intermediate national schools, with 303 teachers and 16,554 pupils of both sexes; 10 municipal schools, with 15 teachers and 871 pupils; 37 private schools, with 95 teachers and 1,895 pupils; 2 normal schools for young men, with 42 professors and 724 students; 1 normal school for young women, with 9 professors and 117 students; and 2 universities, with 10 professors and 40 students; a total of 315 institutions, with 474 teachers and 20,305 pupils and students.

During the revolution of 1893 a great number of national schools were closed, and in 1894, of the above mentioned high and private schools, there were only 193 in operation, as follows:

| Department. | Schools. | Department. | Schools. |
|---|---|---|---|
| Managua | 12 | Matagalpa | 12 |
| Chinandega | 26 | Rivas | 12 |
| Jinotega and Nueva Segovia | 33 | Carazo | 10 |
| Granada | 12 | Chontales | 21 |
| Masaya | 18 | On the Atlantic coast | 6 |
| Leon | 31 | | |

Since then, and especially since 1896, the government has reopened some schools. Also a faculty of medicine and a law school were founded recently in the capital, Managua, and new private schools have been established. There are now about 46 schools more in operation, especially in the Departments of Granada, Jinotega, Nueva Segovia, Matagalpa, Rivas, Chinandega and in the territory along the Atlantic coast. Most of the schools are located in the large cities, as Managua, Leon, Granada, Masaya, Chinandega and Rivas, but besides nine large communities, with from 5,000 to 45,000 inhabitants, there are 263, with from 250 to 5,000 inhabitants, which have in all only about 291 institutions for public instruction. The population of Nicaragua still ranks low in education. No census has yet been made to ascertain how many persons know how to write and read. The mass of the people, there is no doubt, is entirely ignorant.

This fact cannot be more forcibly stated than in the words of a competent and well-authorized government official.

The Inspector-General of Public Instruction, Mr. I. Alberto Gamez, says in his recently published annual report of 1895: "No tenemos maestros, no tenemos mobiliario, no tenemos útiles, no tenemos edificios; en una palabra, en la República no existe la escuela," ("we have no teachers, we have no furniture, we have no teaching material, we have no schoolhouses; in one word, the Republic has no school"). The same government official further says, "that in Granada and Leon (the most civilized cities of the country) there are 30 per cent. of the children enrolled; but only 15 per cent. learn the few things that are taught, and as the number of the enrolled represents really no more than a fifth of the children who ought to go to school, only 3 per cent. acquire these few things."

# VI.

## AGRICULTURE.

The principal agricultural product of Nicaragua is coffee (*Coffea arabica*). The amount of this berry raised shows the cultivation of the coffee tree to be very extensive. The number of trees growing in the different Departments is approximately as follows:

| Department. | Number of Trees. | Department. | Number of Trees. |
|---|---|---|---|
| Managua | 9,761,500 | Nueva Segovia | 531,100 |
| Carazo | 6,000,000 | Chontales | 500,000 |
| Matagalpa | 4,500,000 | Chinandega | 500,000 |
| Masaya | 2,549,900 | Rivas | 150,000 |
| Jinotega | 1,580,000 | | |
| Granada | 1,000,000 | Total | 27,072,500 |

An official publication of 1894 shows 32,375,696 trees under cultivation, with 23,000,000 in Managua alone, which is an exaggeration so far as that Department is concerned. As in the coffee region almost everybody has some trees under tillage, their real number it is very difficult to ascertain. There are over:

250 large coffee fincas in the Department of Managua.
520 " " " " Carazo.
100 " " " " Matagalpa.
90 " " " " Jinotega.

The principal coffee-finca owners in the Department of Managua are P. M. Eisentuch (900,000 trees); Salvador Castrillo (720,000), Ignacio Paez (200,000), José Maria Falla (200,000), Arturo Lizondo (153,000), Angel Robleto (150,000), Daniel Frixione (150,000), Morris Heyden & Co. (140,000), Ramon Sanz & Co. (125,000), Maximo Lopez (120,000), Teodoro Hock (110,000), Salvador Bermudez (100,000), Francisco Solorzano L. (100,000), Rafael Cabrera (100,000), Terencio Garcia (100,000), etc.

The principal proprietors of coffee plantations in Jinotega are Alberto Peter, J. J. Bermudez, Palacio J. Vivas, Arana & Lacayo, Alfaro & Gutierrez, Espinozas & Pando, Talavera Hermanos, Lacayo & Robleto, Marcos A. Lacayo, Tomas Lacayo, Margarito Zamora, and others.

Large coffee-finca owners in the Department of Carazo are Desiderio Roman, Testamentary Pareval J. M. Sanchez, Juan P. Medal, Roman Castillo, Cleto Asenjo, José A. Hernandez, Gregoria V. de Jimenez, Magdalena Acevedo, Salvador Garcia, Manuel Ortega, Gregorio Pena, and others.

Those in Jinotepe are Rapassioli & Hermanos, Vicente Rodriguez, Testamentary Julian Parrales, José Antonio Gonzalez, Enrique Baltodano, José Gonzalez, Francisco Gonzalez, Julio Castro, and others.

Those in Diriamba are Lacayo Hermanos, Juan Quintero, Los Chamorros, Isandro Plata, Pedro Ortego, Chamorro Hermanos, Anastasio Gonzalez, José Robleto, Donoso Martinez, Dr. Ramirez, Francisco Artolo, and others in San Marcos.

Some of the largest proprietors of coffee plantations in Matagalpa are Guillermo Jericho, Charles T. Manning (representing a number of American companies), Narciso Lacayo, Fernando Lopez, Cosme Pinedo, Guillermo Sheridan, Lopez & Zaguirre, Gen. A. Metrailler, Carlos Leclair, Vega & Cantarero, Salvador Chamorro, Horacio Bermudez, José Vita, Salvador Cuadra B., and others.

The American coffee companies in Matagalpa are the Indiana Coffee Co. ($50,000), Jumaiqui Coffee Co. ($50,000), Esmeraldo Coffee Co. ($40,000), Jilgueros Coffee Co. ($30,000), all managed by Chas. T. Manning; also San Francisco Coffee Co.; Matagalpa Coffee Co. ($25,000); Nicaragua Land

and Coffee Co. ($50,000); the Minnesota and Nicaragua Coffee Co. ($60,000); and the California Improvement and Commercial Co. ($50,000).

| | | | |
|---|---|---|---|
| The coffee tree yields, when | 3 | years old, | little fruit. |
| " " " " | 4 | " | an average of ¼ lb. |
| " " " " | 5 | " | from ½ to 1 lb. |
| " " " " | 6 | " | and thereafter, 1½ to 2 lbs. |

In the commercial statistics are stated the quantities of coffee which were exported in 1896 and 1897, as well as in a number of years before.

The government encourages the cultivation of coffee by paying five cents for each tree to planters having 5,000 or more plants under cultivation in the Departments of Nueva Segovia, Chontales, Matagalpa and Jinotega. Twenty-one cents are paid for each cacao tree and ten cents for each rubber tree.

In regard to cacao the Department of Rivas twenty years ago had about 1,000,000 cacao trees under cultivation; to-day this number is reduced over one-half, partly by negligence, partly by insufficient rainfall during a number of years, and also by the eruption of the Ometepe in 1883, which destroyed a number of plantations with its ashes. Cacao is further produced in Chontales, Chinandega and Carazo, as well as in Granada, and especially in the region called "Valle Menier," where a plantation was founded years ago by the celebrated chocolate house of Menier in Paris, but the yield is not sufficient in quantity for export. There are new plantations of cacao along the San Juan River, and also plantations of the indigenous rubber tree (*Castilloa elastica*).

The government has paid premiums to the following cacao growers; in Chinandega to Fulgencio Mayorga for 3,787 trees, Alberto Gamez for 3,998, Isidro Cornejo for 6,392, Mariano & A. Arguello for 44,258 and Pablo E. Schubert for 8,688; in Rivas to Vicente S. Urcuyo for 22,300 trees, Isidro Urtecho for 8,754, Manuel Maliaño for 12,323 and Francisco Sacasa for 21,552; making a total of 132,052 cacao trees.

There are some rubber plantations in Rivas; one of 15,000 trees from 6 to 12 years old exists in Santa Fé, near Buenos Aires, about one and a half leagues from Rivas. As no premiums have yet been paid for plantations of rubber no more details can be obtained.

Premiums were paid for indigo produced in the Department of Rivas to Manuel Antonio Carazo for 366½ pounds, Augusto Cavalli G. for 6,746, Vaughan Hermanos for 2,200, Ximenez & Hermanos for 1,087, or, altogether, for 10,399½ pounds.

The cultivation of indigo is no longer profitable, and only in a few places in the Departments of Rivas, Carazo and Chinandega is the plant (*Indigofera añil*) still cultivated.

The *cabulla* (*Agave*) and *pitafloja*, for which also premiums have been offered, are mostly cultivated in Telica, Quezalguaque and Subtiava in the Department of Leon, and in less quantity in Chinandega, Chontales and Nueva Segovia. Both plants are found nearly everywhere in all Departments, and are partly used for domestic purposes.

Tobacco is especially cultivated in the Department of Masaya and out of thirty-three planters in the city of Masaya, Leopoldo Solano had 90,000 plants, José de Castro 60,000 Anguiz 55,000, and Carlos Abanuza 45,000. In Masatepe there were 500,000 tobacco plants cultivated, and Victoria yielded a crop of 200,000 pounds of leaves.

In regard to corn, beans, mandioca, ñame, potatoes, bananas, pineapples, rice, sugar cane, sorghum, cereals, vegetables, fruit trees, grapes, etc., no reliable data were to be obtained either as to the area devoted to them or the amount of the crops.

There are a great number of fincas (plantations) in every Department; for instance, Chinandega has 926, Carazo 743, Jinotega 679, Matagalpa 716, Chontales 829, etc., if the official cadastre in the Department of Interior is correct. Nearly every family of the rural population tills a little farm, often rented from a large land owner. They always raise bananas, corn, beans and some fruit trees, generally jocote (*Spondias edulis*), mango (*Mangifera indica*) and orange.

A great number of fincas is used for cattle farming, especially in Leon, Chontales, Chinandega, Nueva Segovia, Jinotega, Rivas and Managua. According to some statistical data there were about:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 50,000 | head of cattle | in | Leon. | 20,000 | head of cattle | in | Rivas. |
| 50,000 | " | " | Chinandega. | 18,000 | " | " | Matagalpa. |
| 40,000 | " | " | Chontales. | 15,000 | " | " | Granada. |
| 40,000 | " | " | Managua. | 10,000 | " | " | Masaya. |
| 35,000 | " | " | Nueva Segovia. | 5,000 | " | " | Carazo. |
| 25,000 | " | " | Jinotega. | 5,000 | " | " | Zelaya and Atlantic coastlands. |
| | | | Total, | 313,000 | | | |

There are also about 32,000 horses and mules in the country. Swine are seen everywhere, even in the streets of the cities. There are a small number of goats, and a few sheep. Poultry is raised in immense quantity, and this as well in the large cities as in the valleys and caserios.

In order to promote the improvement of live-stock and the increase of vegetable products, as well as colonization, the government gives premiums for the introduction of high grade animals for breeding, and pays, for instance in the Department of Zelaya for 5 years 3 pesos for 1 hectare of wheat, 4 pesos for 1 hectare of sugar cane, 3 pesos for 1 hectare of tobacco, 3 pesos for 1 hectare of rice, 2 pesos for 1 hectare of beans, 2 pesos for 1 hectare of corn, 2 pesos for 1 hectare of potatoes, 2 pesos for 1 hectare of pasturage.

# VII.

## INDUSTRIES.

The liquor business is a monopoly of the government, which sells the products of the great distilleries. Sugar cane is the raw product from which the liquor, known as aguardiente, is distilled. The following is a list of the existing distilleries.

| Department. | Name. | Department. | Name. |
|---|---|---|---|
| Chinandega | San Antonio, Ch | Granada | San Rafael |
| | San Antonio, B | | San José |
| | San Isidro | | El Pital |
| | San Jerónimo | Carazo | El Sol |
| | La Gloria | | Santa Cecilia |
| Leon | Corcuera | | San Jacinto |
| | El Polvon, | Rivas | La Asuncion |
| | El Polvoncito | Chontales | San Benito |
| Managua | Santa Rosa | Jinotega | Las Pilas |
| | El Trapichito | | Las Delicias |
| Masaya | Santa Rosa | Nueva Segovia | Pasmata |

The partly corresponding revenue from liquors in 1896 was in pesos as follows:

| | | | |
|---|---|---|---|
| Managua | 118,260.05 | Rivas | 28,787.98 |
| Leon | 59,492.65 | Chontales | 26,688.01 |
| Granada | 77,716.49 | Matagalpa | 12,090.09 |
| Chinandega | 52,684.68 | Nueva Segovia | 4,499.44 |
| Masaya | 84,504.87 | Jinotega | 8,740.88 |
| Carazo | 36,742.63 | | |
| | | Total | 505,992.72 |

These distilleries are large producers of sugar and syrup, products which are also manufactured in small quantities all over the country, especially in the Departments of Chinandega, Leon, Managua, Masaya, Carazo, Granada and Jinotega.

Some indigo is produced in the Departments of Rivas and Carazo; starch in Masaya, Rivas, Chinandega and other Departments; cheese in Chontales, Leon, Chinandega, Rivas, etc.; soap in Leon, Managua and Granada; cigars and cigarettes in Masaya and Managua; salt in Chinandega, Rivas, Leon and Managua, along the Pacific coast; earthenware especially in Masaya, Granada, Leon and Rivas, but also in several other Departments; matting of palm and other leaves, as well as baskets, straw hats and hats made out of palm leaves and Panama hats made out of *Carludovica palmata,* called *jipijapa,* chiefly in Rivas, Nueva Segovia and Masaya, there being in the latter Department about 600 people whose sole occupation is making hats; in these Departments and in Chinandega and Chontales hammocks, ropes and similar goods are made of cabulla (*Agave*) and pita floja.

Another domestic industry is the carving of coco nuts, calabases and horns, done mostly by women in Rivas, Carazo, Masaya and a few other places. In the same category falls the production of artificial flowers, all kinds of feather work and figures and fruits made of wax, as well as cotton and woolen cloth and other textiles. These products come from nearly every Department. There is only one textile factory in Leon, which also has an ice factory. Another ice factory exists in Managua, and others are under way in Granada and Bluefields. In these three cities there are on a small scale also factories in which machinery is employed for making bricks, tiles, shoes and furniture.

There are saw mills in Leon, Viejo, Chinandega, San Antonio, Managua and Waua in which American machinery is used. Other industrial establishments are tanneries in Leon, Chinandega, Segovia, etc., as well as establishments for cleaning and drying coffee, which abound in the coffee districts of Carazo, Managua, Matagalpa, etc. Further, in Santa Teresa there is an establishment for extracting yellow dye from the mora or fustic tree. In Nueva Segovia, Jinotega and Mantagalpa balsam, liquidambar, turpentine and vegetable wax are produced.

Counting the shops of carpenters, shoemakers, blacksmiths, tailors, silversmiths, saddlers, etc., it would appear, from official data, that there were over 100 industrial establishments in the city of Managua, 200 in Masaya, 171 in Leon, 134 in Rivas, 90 in Granada, 83 in Jinotega, 43 in Chinandega, 43 in El Viejo, 30 in Matagalpa, 20 in Jinotepe, 18 in Diriamba, and 16 in Ocotal.

Mining industries exist in the Departments of Chontales (La Libertad), Matagalpa, Nueva Segovia, Prinzapolca and Cabo de Gracias á Dios.

# VIII.

## FINANCE.

Since 1893 Nicaragua has been the scene of constant revolution, so that statements of the present resources and expenses do not correspond with what they would be in normal conditions of peace.

The revenues of the country are derived from duties on imports, and on exports of coffee, from stamps, government monopolies in liquors, tobacco and powder, and some small taxes. There are no taxes on coffee lands. In the above statement will be seen the small proceeds of a tax on capital.

A new tariff has been prepared, the publication of which is expected soon. Municipal taxation is moderate, and in smaller communities it is low, because of the primitive manner of living.

The government is the owner of three steamers and of the railroads.

Silver is the standard money of the country, in which the paper currency is redeemable. Gold has naturally to be bought at high price.

The foreign and interior debts, inclusive of the loan of 1886 and the Guirola debt, amounted in August, 1897, to 6,000,000 pesos in round numbers, of which 3,368,433.41 constituted the interior debt. In October of 1897 the national treasury had the following standing:

## ASSETS.

| | | |
|---|---|---|
| **Cash and Portefeuille:** | | |
| Cash | $182,183.42 | |
| Reserves for distillery centres | 3,663.64 | |
| Bills receivable | 152,118.95 | |
| Exchange bills for tobacco | 16,954.00 | $354,920 01 |
| **Rents and Contributions:** | | |
| Direct tax on capital | | 1,138.50 |
| **Inventory:** | | |
| Public property, railroads, steamers, telegraph and post | | 5,500,000.00 |
| **Different Accounts:** | | |
| Voluntary supplements | 1,273.00 | |
| Materials for consumption | 113,359 64 | |
| Various active debts | 276,411.00 | |
| Debt from Public Instruction | 3,838.40 | |
| Cable Company | 77,894.39 | |
| Agents of Government in Exterior | 174,287.69 | |
| Railroad to Los Pueblos | 120,000.00 | |
| Deposits of bonds of territ. credit | 96,080.00 | |
| Railroad credits | 100,000.00 | 963,144.12 |
| | | $6,819,202.63 |

## LIABILITIES.

| | | |
|---|---|---|
| **Cash and Portefeuille:** | | |
| Accounts payable | | $19.26 |
| **Different Accounts:** | | |
| Supplements in favor of various accounts | $78,409.84 | |
| Deposits | 459,325.06 | |
| Bills of the Nat. Treasury | 493,500.00 | |
| Bonds of Custom House, 1891 | 2,297.74 | |
| Bonds of territ. credit, 1893 | 94,594.04 | |
| Orders against the Treasury | 462,04 | |
| Orders to the porter | 150,938.37 | |
| Orders of 30 per cent | .52 | |
| Different passive debts | 836,258.76 | |
| Interior loan, 1895 | 9,489.74 | |
| Forced loan, 93-94 | 91,180.67 | |
| Constancy of excess of duties | 3,356.03 | |
| Loan of 1896 | 332,195.18 | |
| Forced loan of Leon | 8,401.40 | |
| Spec. contributions | 7,282.00 | |
| Voluntary loan | 3,055 00 | |
| Institute of Managua | 179.68 | |
| Foreign loan, 1886 | 2,628,519.38 | |
| Credit of Emp. Nic. C. | 294,767.57 | |
| Loan of foreign Colony | 32,500.00 | |
| Vol. contributions to R. R. dividends | 7,400.00 | |
| Value of Railroad credit | 100,000.00 | |
| Recognized expenses | 6,108.20 | 5,640,216.22 |
| Balance | | 1,178,967.15 |
| | | $6 819,202.63 |

There is but one bank in the country, the London Bank of Central America, Limited. Its headquarters are in Managua, but there are branches in Granada and Leon, and agencies in Massaya, Corinto and Rivas. There is another bank of the same name in Salvador, which has branches in Sonsonate, Santa Ana and San Miguel. About the operations of the bank in Nicaragua little information was obtainable, but a general statement from its manager, Mr. A. M. Bayan, in Managua, namely a printed report of the 23d of April, 1897, shows that the bank has an authorized capital of £600,000, of which £135,500 are paid in. The net profits of 1896 were £18,741; dividends of 8 per cent. were paid, leaving £7,956.16.4 for reserved fund and new account.

## IX.

## NATIONAL WEALTH.

According to data obtained from the Minister of the Interior, the property of Nicaragua and its national wealth are appraised as in the tables below. As these tables distinguish between rural and urban properties, a table is first given from which the ratio between rural and urban populations can be calculated, although it must be noted that most of the rural property is owned by the urban population.

| Departments. | Total Population. | Urban Population. | No. of Cities, Towns and Villages. | Rural Population | No. of Valleys and Caserios |
|---|---|---|---|---|---|
| Managua | 42,460 | 37,800 | 7 | 4,660 | 25 |
| Masaya | 38,869 | 28,849 | 8 | 5,520 | 19 |
| Granada | 18,988 | 15,859 | 4 | 3,079 | 18 |
| Carazo | 18,545 | 16,375 | 6 | 2,170 | 15 |
| Rivas | 25,883 | 14,078 | 12 | 11,805 | 38 |
| Leon | 87,772 | 72,800 | 9 | 14,972 | 78 |
| Chinandega | 34,614 | 26,593 | 12 | 8,021 | 50 |
| Chontales | 40,387 | 9,739 | 13 | 30,648 | 138 |
| Matagalpa | 29,895 | 9,054 | 7 | 20,841 | 96 |
| Jinotega | 37,653 | 7,625 | 7 | 30,028 | 178 |
| Nueva Segovia | 32,642 | 6,579 | 18 | 26,063 | 211 |
| Zelaya | 14,541 | 5,825 | 2 | 8,716 | 52 |
| San Juan del Norte | 2,000 | 2,000 | 5 | ........ | ...... |
| Cabo Gracias á Dios | 4,000 | ........ | ...... | 4,000 | 30 |
| Total | 423,199 | 252,676 | 110 | 170,523 | 948 |

VALUE OF THE URBAN PROPERTIES IN NICARAGUA IN PESOS.

**Department of Managua.**

| | |
|---|---|
| Managua | 2,744,333.38 |
| Nagarote | 1,200.00 |
| San Rafael del Sur | 2,132.00 |
| Total | 2,747,665.38 |

**Department of Leon.**

| | |
|---|---|
| Leon | 737,427.07 |
| El Sauce | 4,152.00 |
| Telica | 300.00 |
| Total | 741,879.07 |

## VALUE OF THE URBAN PROPERTIES IN NICARAGUA IN PESOS.—*Continued.*

### Department of Granada.

| | |
|---|---|
| Granada | 2,570,562.99 |
| Diria | 3,660.00 |
| Diriomo | 13,449.00 |
| Nandaime | 23,818.00 |
| Total | 2,611,489.99 |

### Department of Carazo.

| | |
|---|---|
| Santa Teresa | 8,530.00 |
| San Marcos | 44,850.00 |
| Jinotepe | 235,365.00 |
| Diriamba | 100,170.00 |
| Total | 388,915.00 |

### Department of Jinotega.

| | |
|---|---|
| Jinotega | 101,228.00 |
| La Concordia | 1,085.00 |
| San Isidro | 410.00 |
| San Rafael del Norte | 1,610.00 |
| Estelí | 40,265.00 |
| La Trinidad | 5,100.00 |
| Total | 149,698.00 |

### Department of Matagalpa.

| | |
|---|---|
| Matagalpa | 191,637 00 |
| San Dionisio | 100.00 |
| Metapa | 830 00 |
| Muymuy | 11,925 00 |
| Sébaco | 245.00 |
| Terrabona | 80.00 |
| Total | 204,817.00 |

### Department of Chinandega.

| | |
|---|---|
| Chinandega | 310,763.00 |
| Chichigalpa | 35,560-00 |
| Corinto | 55,477.25 |
| Posoltega | 5,950.00 |
| Somotillo | 7,907.00 |
| El Viejo | 7,562.00 |
| Villanueva | 1,000,00 |
| Total | 424,219.25 |

### Department of Masaya.

| | |
|---|---|
| Masaya | 416,629.64 |
| La Concepcion | 11,480.00 |
| La Victoria | 14,660.00 |
| Mastepe | 56,630.00 |
| Nandasmo | 700.00 |
| Catarina | 635.00 |
| Tisma | 14,477.00 |
| Total | 515,211.64 |

### Department of Rivas.

| | |
|---|---|
| Rivas | 487,859.77 |
| Alta Gracia | 8,254.50 |
| Belen | 2,920.00 |
| Buenos Aires | 7,740.00 |
| Moyogalpa | 1,700.00 |
| Potosí | 36,800.00 |
| San Jorge | 11,894.00 |
| San Juan del Sur | 9,000.00 |
| Total | 566,168 27 |

### Department of Nueva Segovia.

| | |
|---|---|
| Somoto | 9,450.00 |
| Ciudad Antigua | 240.00 |
| Jalapa | 3,600.00 |
| Jicaro | 5,200,00 |
| Macuelizo | 130.00 |
| Mosonte | 70.00 |
| Ocotal | 55,155.00 |
| San José de Quilali | 200.00 |
| Santa Maria | 400.00 |
| Telpaneca | 2,875.00 |
| Condega | 1,500.00 |
| Total | 78,820.00 |

### Department of Chontales.

| | |
|---|---|
| Juigalpa | 44,162.60 |
| Acota | 250.00 |
| Acoyapa | 23,246.00 |
| Boaco | 18,680.00 |
| Camoapa | 22,300.00 |
| El Castillo | 14,362.00 |
| Comalapa | 6,100.00 |
| La Libertad | 22,350.00 |
| San Carlos | 1,600 00 |
| San Lorenzo | 730,00 |
| San José | 1,614.00 |
| San Miguel | 2,785 50 |
| San Pedro | 3,165.00 |
| Santo Tomas | 200.00 |
| Total | 161,545.10 |

### Resumé.

| | |
|---|---|
| Managua | 2,747,663.38 |
| Leon | 741,879.07 |
| Granada | 2,611,489.99 |
| Carazo | 388,915.00 |
| Jinotega | 149,698.00 |
| Matagalpa | 204,817.00 |
| Chinandega | 424,219.25 |
| Masaya | 515,211.64 |
| Rivas | 566,168.27 |
| Nueva Segovia | 78,820.00 |
| Chontales | 161,545.10 |
| Total Pesos | 8,590,428.70 |

# VALUE OF THE RURAL PROPERTY IN NICARAGUA IN PESOS.

### Department of Carazo.

| | |
|---|---|
| Diriamba | 840,399.00 |
| Jinotepe | 1,413,688,10 |
| San Marcos | 574,637.00 |
| Santa Teresa | 42,385 00 |
| Other Districts | 491,839.00 |
| Total | 3,362,948.10 |

### Department of Chinandega.

| | |
|---|---|
| Corinto | 255,038 76 |
| Chinandega | 901,035.41 |
| Chichigalpa | 102,287.74 |
| El Viejo | 70,450.00 |
| Posoltega | 32,740.00 |
| Somotillo | 32,950.00 |
| Villanueva | 16,260.00 |
| Total | 1,410,756.91 |

### Department of Chontales.

| | |
|---|---|
| Acoyapa | 93,619.00 |
| Acota | 9,100.00 |
| Boaco | 54,960 64 |
| Camoapa | 87,858 00 |
| Comalapa | 43,688.00 |
| El Castillo | 8,645.00 |
| Juigalpa | 188.515.20 |
| La Libertad | 248,288.00 |
| San Carlos | 10,000.00 |
| San José | 14,332.00 |
| San Lorenzo | 7,364.00 |
| San Miguel | 11,011.00 |
| San Pedro | 38,686.00 |
| Santo Tomas | 26,600.00 |
| Total | 842,626 84 |

### Department of Granada.

| | |
|---|---|
| Diria | 44,256.00 |
| Diriomo | 83,583 00 |
| Granada | 8,571,679 31 |
| Nandaime | 100,822.00 |
| Panaloya | 1,760.00 |
| Other Districts | 15,840.00 |
| Total | 8,817,940.31 |

### Department of Jinotega.

| | |
|---|---|
| Concordia | 23,211.00 |
| Jinotega | 440,288.86 |
| San Isidro | 2,450.00 |
| San Rafael del Norte | 28,145.00 |
| Esteli | 278,867.72 |
| La Trinidad | 13,162.00 |
| Total | 786,124.58 |

### Department of Leon.

| | |
|---|---|
| El Sauce | 58,758.20 |
| Leon | 2,713,572.94 |
| Telica | 6,681.00 |
| Total | 2,778,962.14 |

### Department of Managua.

| | |
|---|---|
| Managua | 9,515,675.09 |
| Momotombo | 13,800.00 |
| Nagarote | 11,010.00 |
| San Rafael del Sur | 33,268.00 |
| Total | 9,573,248.09 |

### Department of Masaya.

| | |
|---|---|
| Catarina | 5,392.00 |
| La Concepcion | 181,468.00 |
| La Victoria | 78.665.00 |
| Masaya | 2,194,402.00 |
| Masatepe | 419,848.00 |
| Nandasmo | 10,540.00 |
| Tisma | 66,806.00 |
| Total | 2,906,618.00 |

### Department of Nueva Segovia.

| | |
|---|---|
| Ciudad Antigua | 7,050.00 |
| Jalapa | 37,229.00 |
| Jicaro | 105,980.00 |
| Macuelizo | 7,655.00 |
| Mosonte | 3,483.00 |
| Ocotal | 177,554.00 |
| Somoto | 122,698.00 |
| San José de Quilali | 6,000.00 |
| Sta. Maria | 9,350.00 |
| Telpaneca | 14,890.00 |
| Condega | 19,118.50 |
| Total | 510,952.50 |

### Department of Rivas.

| | |
|---|---|
| Alta Gracia | 25,847.57 |
| Belen | 23,590.00 |
| Buenos Aires | 4,440.00 |
| Moyogalpa | 7.585.00 |
| Potosi | 104,891.00 |
| Rivas | 1,671,983.99 |
| San Jorge | 125,151.73 |
| San Juan del Sur | 22,300.00 |
| Total | 1,985,247.29 |

### Department of Matagalpa.

| | |
|---|---|
| Matagalpa | 896,983.84 |
| Metapa | 8,623 10 |
| Muymuy | 76,916.00 |
| San Dionisio | 7,100.00 |
| Sébaco | 4,746.75 |
| Terrabona | 2,946 00 |
| Total | 997,265.69 |

## Resumé.

| | |
|---|---|
| Managua | 9,578,248.09 |
| Granada | 8,817,940.31 |
| Carazo | 8,362,948.10 |
| Masaya | 2,906,618.00 |
| Leon | 2,778,962.14 |
| Rivas | 1,985,247.29 |
| Chinandega | 1,410,756.91 |
| Matagalpa | 997,265 69 |
| Chontales | 842,626 84 |
| Jinotega | 786,124.58 |
| Nueva Segovia | 510,952.50 |
| Total pesos | 33,972,690.45 |

Arranging the different Departments in the order of their relative wealth, the following result is reached:

| Department. | Millions of Pesos. | Department. | Millions of Pesos. |
|---|---|---|---|
| Managua | 12.32 | Chinandega | 1.83 |
| Granada | 11.42 | Matagalpa | 1.20 |
| Carazo | 3.75 | Chontales | 1.00 |
| Masaya | 3.72 | Jinotega | 0.98 |
| Leon | 3.52 | Nueva Segovia | 0.59 |
| Rivas | 2.54 | | |

The principal cities in their appraisement of property have the following order:

| Cities. | Total in Pesos. | Urban Property in Pesos. | Rural Property in Pesos. |
|---|---|---|---|
| Managua | 12,260,008 | 2,744,333 | 9,515,675 |
| Granada | 11,142,241 | 2,570,562 | 8,571,679 |
| Leon | 3,451,000 | 737,427 | 2,713,572 |
| Masaya | 2,611,031 | 416,629 | 2,194,402 |
| Rivas | 2,159,842 | 487,859 | 1,671,983 |
| Jinotepe | 1,649,053 | 235,365 | 1,413,688 |
| Chinandega | 1,211,798 | 310,763 | 901,085 |
| Matagalpa | 1,088,570 | 191,637 | 896,983 |
| Diriamba | 940,569 | 100,170 | 840,399 |
| San Marcos | 619,487 | 44,850 | 574,637 |
| Jinotega | 541,516 | 101,228 | 440,288 |

In another order follow the Departments in regard to their contributions to the national treasury, which is as follows:

Carazo, Granada, Managua, Leon, Masaya, Matagalpa, Jinotega, Nueva Segovia, Chinandega, Rivas and Chontales. Custom houses have the following relative importance, Corinto, San Juan del Norte, San Juan del Sur and Bluefields.

# X.

## COMMERCE.

The following data are due to the German Consul, Mr. Carl Heyden, who, at the expense of the German Government, with the help of the Chief of Statistics and of Custom House Officials, brought them together. They relate to the year of 1896 and partly, for comparison, to 1895:

| | Importation. | | Exportation. | |
|---|---|---|---|---|
| | Pesos. 1895. | Pesos. 1896. | Pesos. 1895. | Pesos. 1896. |
| Germany | 688,074.41 | 929,939.84 | 2,973,318.53 | 2,286,145.83 |
| Great Britain | 1,483,572.22 | 1,427,385.48 | 684,798.00 | 729,696.63 |
| United States | 719,253.10 | 676,372.91 | 997,549.95 | 1,008,715.95 |
| France | 371,881.51 | 477,611.27 | 285,954.20 | 386,661.89 |
| Italy | 23,876.94 | 48,250.00 | 211,062.20 | 273,627 50 |
| Spain | 9,620.39 | 12,185.55 | .......... | .......... |
| China | 12,622.50 | 7,952.50 | .......... | .......... |
| Colombia | 6,629.85 | 9,947.01 | 8,500.00 | 28,560.00 |
| Chile | 12,071.13 | 7,250.81 | .......... | .......... |
| Mexico | 9,177.65 | 6,968.09 | .......... | .......... |
| Cuba | 1,525.00 | .......... | .......... | .......... |
| Austria | .......... | .......... | .......... | 19,176.40 |
| Ecuador | 10,945.46 | 8,618.54 | .......... | .......... |
| Peru | 191,107.50 | 6,960.00 | .......... | .......... |
| Guatemala | 44,853.26 | 18,383.76 | 132,594.08 | 162,655.46 |
| Honduras | 63,317.50 | .......... | 226,419.45 | 187,097.58 |
| Salvador and Costa Rica | 501,931.27 | 101,846.41 | 615,861.92 | 619,667.31 |
| Other countries | 90,000.10 | 497,000.00 | 2,388.60 | .......... |
| Total | 4,235,459.78 | 3,726,667.17 | 6,138,396.93 | 5,647,004.05 |

The imports from the United States consisted principally of:

| | Pesos. | | Pesos. |
|---|---|---|---|
| Wheat flour | 155,385.86 | Iron piping | 9,776.55 |
| Wines | 60,174.38 | Cottonades | 9,587.67 |
| Cashmere | 47,256.24 | Perfumes | 7,294.45 |
| Petroleum | 47,089.71 | Machetes | 6,842.74 |
| Drugs and Medicines | 37,453.68 | Machinery | 6,484.02 |
| Wire (Fence) | 25,485.00 | Preserved fruits | 6,495.94 |
| Calf Leather | 20,979.04 | Corn | 6,187.16 |
| Cotton Goods | 18,668.01 | Lamps | 5,828.06 |
| Beer | 19,292.18 | Potatoes | 5,028.84 |
| Rice | 18,306.32 | Hardware | 4,174.36 |
| Grease | 16,499.74 | Olives | 3,710.00 |
| Printed cotton | 11,774.34 | Ink | 1,458.02 |
| Sewing machines | 11,630.74 | | |

Principal imports from Great Britain in 1896 were:

| | Pesos. | | Pesos. |
|---|---|---|---|
| Cotton goods | 271,447.81 | Woolen blankets | 27,645.85 |
| Cotton blankets | 145,318.75 | Laces | 21,116.64 |
| Gauze | 143,649.74 | Roofing sheets | 21,090.26 |
| Drilling | 68,464.30 | Cotton handkerchiefs | 18,238.65 |
| Sacks | 46,733.44 | Cashmere | 17,365.16 |
| Cotton thread | 38,634.81 | Machetes | 16,999.24 |
| Machinery | 36,481.24 | Yarn | 15,391.21 |
| Drugs and Medicines | 31,647.41 | Railroad material | 14,728 64 |
| Hardware | 25,346.87 | Iron tanks | 13,003.65 |

Principal imports from Germany in the same year were:

| | Pesos. | | Pesos. |
|---|---|---|---|
| Steel rails | 110,000.00 | Chinaware | 17,480.60 |
| Cotton goods | 44,850.42 | Cement | 17,005.32 |
| Beer | 34,696.56 | Hardware | 16,760.45 |
| Socks, etc | 32,916 60 | Toilet Sets | 16,224.70 |
| Drilling | 32,335.80 | Distillery apparatus | 15,816.23 |
| Machetes | 27,740.67 | Matches | 15,176.00 |
| Sacks | 25,752.65 | Drugs and Medicines | 13,508.64 |
| Wire (Fence) | 25,232 76 | Rice | 11,944.60 |
| Wineglasses | 21,269 58 | Leather goods | 11,189.68 |
| Calf leather | 20,170.59 | Stearin candles | 10,561.63 |
| Cashmere | 19,686.16 | Furniture | 10,453 60 |
| Silk braid | 18,664.26 | Printed cotton | 9,651 63 |

*France* sold in Nicaragua chiefly wines, ribbons, roofing, furniture, shoes, hats, cotton goods, jewelry, leather, perfumes, cashmere, silk fabrics, paper, hardware, books, drugs and medicines, and pocketbooks.

*Italy:* Vinegar, wines, hats, paper, salami sausage, oil, fence wire.

*Spain:* Books, wines and sausages.

*China:* Silk fabrics.

*Chile:* Wines, canned goods, beans.

*Mexico:* Cigars and cigarettes.

*Colombia:* Sackcloth, cotton goods, clothing, wines and liquors.

*Guatemala:* Woolen blankets.

*Salvador* and *Costa Rica:* Cacao, tobacco, cigars, rice.

*Peru:* Sugar.

*Ecuador:* Panama hats.

The exports of Nicaragua consist largely of coffee, and in 1896 she sent as follows:

| | | | | | |
|---|---|---|---|---|---|
| 1,112,479 | kilos. | valued at | 647,658.80 | pesos, | to the United States. |
| 3,474,479 | " | " | 2,276,531.60 | " | " Germany. |
| 591,972 | " | " | 374,653.68 | " | " France. |
| 863,699 | " | " | 569,133.43 | " | " Great Britain |
| 447,010 | " | " | 271,340.60 | " | " Italy. |
| 11,484 | " | " | 19,176.40 | " | " Austria. |
| **Total.....6,501,113** | **kilos.** | **valued at** | **4,158,494.21** | **pesos.** | |

The largest portion of the coffee goes out of the port of Corinto, one-twelfth out of the port of San Juan del Sur, and the same proportion out of the port of Greytown, or San Juan del Norte. The largest portion goes out clean as "café en oro;" about one-tenth is "café en pergamino;" one-one-hundredth "café negro," and one-three-hundredth "café en cereza."

For comparison the following list of coffee exports for fifteen years, although incomplete, is given. It was made out by the Austrian Consul, Mr. Low, with the help of government officials:

| Year. | Pounds. | Price in Pesos per 100 lbs. | Value in Pesos. |
|---|---|---|---|
| 1879 | 3,529,300 | 8.00 | 282,344 |
| 1880 | 4,528,300 | 8.50 | 384,905 |
| 1881 | 4,698,200 | 9.00 | 422,838 |
| 1882 | 7,328,300 | 9.00 | 657,547 |
| 1883 | 5,458,100 | 9.50 | 518,519 |
| 1884 | 7,238,400 | 9.50 | 687,648 |
| 1885 | 7,052,500 | 10.00 | 701,210 |
| 1886 | 7,235,100 | 10.00 | 723,510 |
| 1887 | 6,847,000 | 20.00 | 1,369,400 |
| 1888 | 8,816,600 | 18.00 | 1,586,988 |
| 1889 | 8,414,500 | 20.00 | 1,682,900 |
| 1890 | 11,382,000 | 24.00 | 2,731,680 |
| 1891 | 9,154,000 | 22.00 | 2,013,880 |

Other articles of exportation are bananas, sugar, rubber mora or fustic in logs or in extract, campeche or brazilwood, hides, deer skins, gold, cheese, cattle, coconuts, indigo, turtle shell (carey), cacao, tobacco, starch, hammocks, palm leaves, salt, corn and beans.

To the United States there were exported during 1896, besides the already mentioned coffee:

| | | | |
|---|---|---|---|
| Hides | 68,667 kilos. | valued at | 217,286.74 pesos. |
| Rubber | 16,230 " | " | 7,952.00 " |
| Coined silver | 7,190 " | " | 269,710.00 " |
| Deer skins | 34,781 " | " | 12,173.85 " |
| Gold bullion | ..... | " | 49,939.10 " |

The United States Consul, Dr. Paul Wieseke, in Managua, whose district embraces all Nicaragua, except the Atlantic coast lands, furnished the following data about the exports to the United States during the fiscal year, from the 1st of July, 1896, to the 30th of June, 1897, passing through the ports of Corinto and San Juan del Sur:

| Articles. | Port of Corinto. | Port of San Juan del Sur. |
|---|---|---|
| Cedar logs | 244.00 pesos. | ........ |
| Chocolate | 50.00 " | ........ |
| Coffee | 283,478.06 " | 18,012.40 pesos. |
| Deer skins | 21,639.76 " | 4,260.40 " |
| Feathers | 600.00 " | ........ |
| Hides | 25,096.76 " | 3,101.95 " |
| Rubber | 31,776.71 " | 13,103.30 " |
| Walnut | 301.20 " | ........ |
| | 363,181.49 pesos. | 38,478.05 pesos. |

From the Atlantic coast were sent during the same time, and mostly through the port of Bluefields:

| | | | | |
|---|---|---|---|---|
| Bananas | 1,483,000 | bunches, | valued at | $488,654 |
| Cocoanuts | 220,510 | | " | 8,273 |
| Gold dust | 9,949 | ounces, | " | 169,565 |
| Rubber | 446,216 | pounds, | " | 204,670 |
| Coined silver | 51,700 | pesos, | " | 25,498 |
| Turtle shell (carey) | 470½ | pounds, | " | 1,619 |
| Human bones (probably the bodies of Chinamen being sent back to China) | | | " | 1,011 |
| | | | | $889,285 |

At Cabo de Gracias á Dios were imported during 6 months on 11 steamers, 18 sailing vessels, 17 canoes, 330,840 pounds, valued at 45,371 pesos, and exported rubber, carey, tuna, gutta-percha, cedar, caoba, skins, gold, bananas, 61,814 pounds, valued at 32,409 pesos.

The exportation to *Germany* consisted mostly of coffee, brazilwood and coined silver.

To *Great Britain*, coffee, gold and coined silver.

To *France*, coffee, mora or fustic and hides.

To *Italy* and *Austria*, only coffee.

To *Colombia*, silver.

To *Guatemala*, sugar, corn, salt, beans and hides.

To *Costa Rica*, sugar, tobacco, palm leaves.

To *Honduras*, beans, corn and sugar.

To *Salvador*, corn, hammocks, salt, cheese, hides, sole leather and starch.

For the year 1897 the following data were secured concerning the export of coffee:

### Port of Corinto.

FROM JANUARY TO SEPTEMBER.

1,172 sacks, or 140,624 pounds coffee "negro."
10,588 " " 1,189,981½ " " "pergamino."
85,265 " " 11,496,166½ " " "oro."

### Port of San Juan del Sur.

FROM MARCH TO JUNE

1,843 sacks, or 238,400 pounds coffee "oro."

### Port of San Juan del Norte.

FROM JANUARY TO JUNE.

10,178 sacks, or 1,290,580 pounds coffee "oro."

From San Juan del Norte were exported during the first six months of 1897, 62,153 pounds of rubber under the following marks: F. CH. H.—V. Z. H.—C.—K.—M. V. H.—M. A.—E. CH.—F. AJ.—J. FG.—S. C.—L.—M. E.—R. M.—J. A. C.—NZ.—C. F. B.—J. G.—BA.—J. E.—J. E. A.—J. C. K.— I. I.

As the National Department of Statistics in Nicaragua consists only of a chief without subordinates, the latter having been dismissed because the last revolution demanded economy, no other official data could be obtained without personal work in the different custom houses and other offices.

From the as yet unprinted report of the Minister of Fomento the following note is taken which may be of some use, namely, that on the national railroads and steamships there had been transported to the port of Corinto, from February to June, 1897:

| | | | | |
|---|---|---|---|---|
| 60,626 | sacks, or | 8,446,122 | pounds of coffee from | Managua. |
| 21,998 | " " | 2,928,425 | " " " | Masaya. |
| 1,199 | " " | 160,990 | " " " | Granada. |
| 83,823 | | 11,535,537 | | |

The statements presented in this chapter have been compiled from official sources. While the disorganized condition of affairs in Nicaragua makes the presentation of accurate statistics almost an impossibility, still these figures may be accepted as fairly representative of the commerce of the country.

It will be seen by a glance at the tables given, that in 1896 the total importations were 3,726,667 pesos as against an exportation of 5,647,004 pesos, leaving a balance of trade in favor of Nicaragua amounting to 1,920,337 pesos.

Of the total import and export trade the ratios according to principal countries were divided as follows: Germany 34 per cent., Great Britain 23 per cent., United States 18 per cent., France 9 per cent.

Taking the exports from Nicaragua, the proportionate shares of chief countries in this trade were: Germany 40 per cent., United States 18 per cent., Great Britain 13 per cent., France 7 per cent.

The imports into Nicaragua were distributed as follows: Great Britain 38 per cent., Germany 25 per cent., United States 18 per cent., France 13 per cent.

The principal lines of importation are textiles (especially cotton fabrics), steel rails, ironwares of all kinds, and machinery.

Of cottons there were imported a valuation of 831,830 pesos, chiefly drilling, muslins, calicoes, thread, etc. Of these Great Britain sent 72 per cent., Germany 17 per cent., and the United States 11 per cent.

Of iron, its manufactures, and hardware there were imported 296,011 pesos, of which 60 per cent. came from Germany, 23 per cent. from Great Britain, 17 per cent. from the United States.

Of machinery, about 43,000 pesos were imported, six-sevenths of which were from England and the remainder from the United States.

Of the trade in food-stuffs the United States held the most important share. They sent thither, in 1896, a valuation of 188,618.18 pesos, comprising, in order of importance, wheat-flour, rice, maize, potatoes, and olives. The only food importation enumerated from other countries for the same period was about 12,000 pesos in value of rice, from Germany.

# XI.

## MEANS OF COMMUNICATION AND TRANSPORTATION.

### POST AND TELEGRAPH.

Since the 20th of April, 1876, Nicaragua has been connected with the outside world by telegraph. There are now 1,752 miles of telegraph wire running through the country, with 126 apparatus in 83 stations, served by 127 officials, 117 messengers and 66 guards of lines. During the year ending with May, 1897, there were sent out 222,464 private messages; 150,640 official; 103,916 transit; in all 477,020 messages.

On the 2d of October, 1882, a submarine cable office was opened at San Juan del Sur. Some years ago telephone apparatus were put in connection with the telegraph lines.

The postal service is managed in Nicaragua by a Director General, 10 employés of the General Direction, 19 administrators, 18 auxiliaries, 91 postal agents, 126 letter carriers and 29 postal contractors, all at the headquarters of the Department. There are 19 first class, 91 second class, and 9 exchange offices.

The largest amount of correspondence was received and despatched in Corinto, followed by Granada, Managua, Leon, Masaya, Rivas, San Juan del Norte, Bluefields, Chinandega, Jinogalpa, Jinotepe, Matagalpa, Rama, San Juan del Sur, Somoto, Jinotega, Ocotal.

In 1896 there were received 1,376,366 pieces of correspondence, and 1,242,876 were delivered.

The distances between the different administrative centres in miles is approximately as follows:

| | Managua. | Masaya. | Granada. | Rivas. | S. Juan del Sur. | Jinotepe. | Leon. | Chinandega. | Corinto. | Esteli. | Somoto. | Ocotal. | Jinotega. | Matagalpa. | Juigalpa. | S. Juan del Norte. | Bluefields. | Rama. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Masaya. | 19 | | | | | | | | | | | | | | | | | |
| Granada. | 31 | 12 | | | | | | | | | | | | | | | | |
| Rivas. | 90 | 71 | 59 | | | | | | | | | | | | | | | |
| S. Juan del Sur. | 108 | 89 | 77 | 18 | | | | | | | | | | | | | | |
| Jinotepe. | 47 | 28 | 40 | 99 | 117 | | | | | | | | | | | | | |
| Leon. | 63 | 82 | 44 | 153 | 171 | 110 | | | | | | | | | | | | |
| Chinandega. | 88 | 107 | 119 | 178 | 196 | 135 | 25 | | | | | | | | | | | |
| Corinto. | 100 | 119 | 131 | 190 | 208 | 147 | 37 | 12 | | | | | | | | | | |
| Esteli. | 171 | 190 | 202 | 261 | 279 | 218 | 108 | 133 | 145 | | | | | | | | | |
| Somoto. | 240 | 259 | 271 | 330 | 848 | 287 | 177 | 202 | 214 | 69 | | | | | | | | |
| Ocotal. | 264 | 283 | 295 | 854 | 372 | 311 | 201 | 226 | 238 | 93 | 24 | | | | | | | |
| Jinotega. | 132 | 151 | 163 | 222 | 240 | 179 | 156 | 181 | 193 | 48 | 117 | 141 | | | | | | |
| Matagalpa. | 108 | 127 | 139 | 198 | 216 | 155 | 171 | 196 | 208 | 72 | 141 | 165 | 24 | | | | | |
| Juigalpa. | 100 | 81 | 69 | 128 | 146 | 109 | 163 | 188 | 200 | 280 | 349 | 873 | 232 | 208 | | | | |
| S. Juan del Norte. | 346 | 327 | 315 | 374 | 392 | 855 | 409 | 484 | 446 | 517 | 586 | 610 | 478 | 454 | 384 | | | |
| Bluefields. | 490 | 471 | 459 | 518 | 536 | 499 | 553 | 578 | 590 | 661 | 730 | 754 | 622 | 598 | 528 | 144 | | |
| Rama. | 238 | 214 | 202 | 261 | 279 | 242 | 296 | 321 | 833 | 404 | 473 | 497 | 365 | 841 | 183 | 284 | 140 | |
| Cabo Gracias á Dios. | 922 | 903 | 891 | 950 | 968 | 931 | 985 | 1010 | 1022 | 1093 | 1162 | 1186 | 1054 | 1080 | 703 | 576 | 432 | 572 |

The regular connection of Nicaragua with the outside world by steamers is performed on the west side by the Pacific Mail Steamship Co., the vessels of which, southward bound, touch at Corinto on the 6th, 13th and 26th of each month, and at San Juan del Sur one day later. Going north they call at San Juan del Sur on 5th, 14th and 24th, and at Corinto on the 12th, 15th and 25th of each month. The company receives a subsidy of $8,000 (gold) a year from the Government of Nicaragua for this service and for carrying the mail. An irregular service is performed by the steamers of the Cosmos line, which are bound to call at the ports of Corinto and San Juan del Sur at least five times a year, two or three times at each port. For this the line receives $300 (gold) for each trip, but is also required to bring cargoes direct at a reduction of 10 per cent. on the freight scales established by the Pacific Mail.

On the Atlantic side a steamer of the Atlas Steamship Co., Limited, now calls once a month at the port of San Juan del Norte, or Greytown, both on its way going south and returning north. In former times this port was reached by these steamers twice a month each way. In addition, an Italian line, "La Veloce," sends vessels here once a month to seek cargo and passengers going south. Some time since steamers of the Royal Mail Line came twice a month to this port, but finding the business unprofitable abandoned the service.

It is said that there is an independent steamer of 250 tons burden plying between the ports of San Juan del Norte, Bluefields, Boca del Rama, Rio Grande, Wuonauta and Prinzapolca, Cabo de Gracias á Dios, Corn Island and Puerto Limon, making several round trips a month, and receiving 24,000 silver pesos a year for carrying the mail.

At the ports of San Juan del Norte and Bluefields, as occasion may require, fruit or banana steamers call, as those of the Bluefields' Banana Co., of the Morgan Line, of the Honduras & Guatemala Mail Line, etc. Often passengers destined to Europe or the United States are obliged to take small sailing vessels to Puerto Limon in Costa Rica, about 60 miles south of San Juan del Norte, in order to obtain passage. Small sailing vessels do most of the coast business along the Atlantic.

In the chapter on Commercial Statistics there is enumerated the number of ships which entered the Atlantic and Pacific ports of Nicaragua during the year 1896.

From the port of Greytown there is communication, by means of flat-bottomed steamers on the San Juan River, with Nicaragua Lake; three times a month by the steamer "Hollembeck," which runs in one day to Castillo Viejo, and by the steamer "Managua," which runs thence to San Carlos in one-half day, and *vice versa.* This line has lately been bought by the Atlas Steamship Co., Limited, which also owns the steamer "Victoria," of 180 tons burden, made in Wilmington, Del., plying on the Great Lakes, and performing service between San Carlos and the different lake-ports, as San Ubaldo, Granada, San Jorge and others. This line has its headquarters at Granada.

There are about 6,000 to 8,000 tons of freight transported by this line each year, and from 3,550 to 5,000 passengers. The freight rate is from 25 to 35 pesos per ton, except for coffee, which pays one gold peso per 100 pounds for delivery in New York and Europe. Passenger rates are 30 pesos for first class and 12½ for second class between Granada and San Juan del Norte.

On the Lake of Managua are three steamers, the "Managua," of 120 tons, the "Angela," of 120 tons, and the "Progreso," of 100 tons. These belong to the National Government and ply between the ports of Managua and Momotombo, connecting daily with the railroad service, on one side to the sea-port of Corinto and on the other side to the lake-port of Granada.

There is besides a small private steamer, "Vapor Güis," which runs between Managua and San Francisco del Carnicero, Tipitapa and San Ramon. The passage costs 50 centavos per person, and the freight 30 centavos per 100 pounds.

The national steamers had, during the fiscal year ending with June, 1897, the following income from passengers and freight:

| | | |
|---|---|---|
| Passengers from Momotombo to Managua | 19,378.75 | pesos. |
| Freight " " " " | 45,742.84 | " |
| Passengers from Managua to Momotombo | 22,127.65 | " |
| Freight " " " " | 38,248.25 | " |
| | 125,491.99 | pesos. |

The railroads were built by the National Government. The first, between Corinto and Momotombo, was opened to the public on February 27th, 1884, and the second, between Managua and Granada, on May 1st, 1886.

The itinerary of the first road is:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | miles from | Corinto to | Chinandega. | 35 | miles from | Corinto to | Leon. |
| 21 | " | " | Chichigalpa. | 50 | " | " | La Paz. |
| 25 | " | " | Posoltega. | 58 | " | " | Momotombo. |
| 29 | " | " | Quezalguaque. | | | | |

The itinerary of the second road is:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8 | miles from | Managua to | Sabana Grande. | 19 | miles from | Managua to | Masaya. |
| 11 | " | " | Portillo. | 21 | " | " | San Blas. |
| 14 | " | " | Campuzano. | 32 | " | " | Granada. |
| 17 | " | " | Niudiri. | | | | |

Between Momotombo and Managua the distance is 32 miles by steamer.

On the first road there were moved 37,972 first class passengers and 266,487 third class on ordinary trains, and 420 first class and 9,364 third class on excursion trains, from whom 110,260.30 pesos were derived.

Of freight there were moved on the same line 31,735 tons of private goods, 2,052 tons of official goods, and 7,238 tons received from the eastern division, making a total of 41,025 tons, on which the freight was 247,159.91 pesos.

The eastern division of the railroad moved 29,499 first class passengers, 2,350 second class and 245,144 third class, making a total of 276,922 passengers. Their fares came to 120,001.25 pesos during the year, from the preceding July to June, 1897.

During the same time 83,823 sacks of coffee, weighing 11,535,500 pounds, and 10,185,200 tons of other freight were moved, for which 106,274.16 pesos were paid. These statistics are compiled from an unpublished memorial of the Minister of Fomento.

The following interesting tables are derived from the same source, and concern the traffic on the eastern and western divisions of the railroad during the year ending June 25th, 1897. In them is presented the traffic of different cities in such a way as to disclose the relative commercial importance of each, as well as the aggregate freights and the receipts of the roads by months.

## FREIGHT TRAFFIC OF NICARAGUA RAILROADS FOR THE YEAR ENDING JUNE 25TH, 1897.

### Freight in pounds moved on the western railroad:

| Name. | Corinto. | Chinandega. | El Viejo. | Chichigalpa. | Posoltega. | Quezalguaque. | Leon. | La Paz. | Momotombo. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| Corinto | ........ | 2,015,558 | 182,104 | 938,657 | 119,524 | 109,085 | 10,728,026 | 29,985 | 8,978 | 14,126,907 |
| Chinandega | 2,609,477 | ........ | 127,202 | 588,899 | 57,698 | 311,073 | 1,369,991 | 201,286 | 1,283 | 5,246,909 |
| El Viejo | 1,170,223 | 239,413 | ........ | 4,547 | 4,834 | 5,287 | 194,147 | 19,730 | ........ | 1,638,181 |
| Chichigalpa | 1,212,867 | 1,081,178 | 19,041 | ........ | 25,894 | 138,152 | 1,350,140 | 104,903 | 26,845 | 3,959,020 |
| Posoltega | 839,948 | 120,286 | 7,127 | 21,201 | ........ | 18,402 | 427,185 | 86,872 | 14,220 | 1,030,241 |
| Quezalguaque | 281,757 | 77,685 | 219 | 10,438 | 2,178 | ........ | 192,969 | 31,456 | 4,829 | 601,531 |
| Leon | 4,910,165 | 857,612 | 100,714 | 534,671 | 258,296 | 106,822 | ........ | 365,399 | 124,486 | 7,257,665 |
| La Paz | 776,024 | 606,907 | 145,260 | 308,524 | 54,343 | 108,083 | 2,300,319 | ........ | 25,619 | 4,320,079 |
| Momotombo | 112,320 | 600 | 230 | 400 | 279 | 1,630 | 58,722 | 62,385 | ........ | 236,566 |
| Total | 11,412,781 | 4,999,237 | 581,897 | 2,352,337 | 553,046 | 798,034 | 16,621,499 | 902,016 | 201,255 | 38,417,093 |

### Freight in pounds moved during the same time from the western to the eastern division:

| Name. | Managua. | Sabana Grande. | El Portillo. | Campazano. | Nindiri. | Masaya. | San Blas. | Granada. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| Corinto | 6,277,806 | 39,281 | ........ | ........ | ........ | 1,651,374 | 4,472 | 7,407,450 | 15,380,383 |
| Chinandega | 1,565,935 | ........ | ........ | ........ | 835 | 331,143 | ........ | 253,447 | 2,151,360 |
| El Viejo | 442,807 | ........ | ........ | ........ | ........ | 55,545 | ........ | 83,500 | 581,852 |
| Chichigalpa | 423,448 | 171 | ........ | ........ | ........ | 185,276 | 280 | 809,420 | 1,418,595 |
| Posoltega | 185,594 | ........ | ........ | ........ | ........ | 22,852 | ........ | 7,231 | 215,677 |
| Quezalguaque | 19,927 | ........ | ........ | 2,000 | ........ | 5,297 | ........ | ........ | 27,224 |
| Leon | 2,228,143 | 7,918 | ........ | ........ | 297 | 742,408 | ........ | 872,972 | 3,851,716 |
| La Paz | 400,785 | ........ | ........ | ........ | ........ | 451,652 | ........ | 514,441 | 1,366,878 |
| Momotombo | 50,011 | ........ | ........ | ........ | ........ | 400 | ........ | 8,962 | 59,373 |
| Total | 11,594,456 | 47,365 | ........ | 2,000 | 1,114 | 3,445,947 | 4,752 | 9,957,424 | 25,053,058 |

### Freight paid in pesos to the eastern division of the Nicaragua National Railroad:

| Name. | July. | August. | Sept. | October. | Nov. | Dec. | January. | February. | March. | April. | May. | June. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Granada city | 913.36 | 1,081.31 | 1,406.78 | 987.19 | 1,296.95 | 1,201.47 | 1,854.19 | 1,142.43 | 1,297.09 | 1,356.08 | 1,849 81 | 1,059.36 | 14,946.02 |
| Granada pier | 833 41 | 544.20 | 499.48 | 436.86 | 600.47 | 512.65 | 300.48 | 535.99 | 857.18 | 373.07 | 355.71 | 472.87 | 5,822.82 |
| San Blas | 8.95 | 17.00 | 18.75 | 8.90 | 21.80 | 81.90 | 41.15 | 16.20 | 19.65 | 7.40 | 25.50 | 11.15 | 223.85 |
| Masaya | 697.60 | 519.59 | 644.80 | 639 05 | 595.15 | 865.50 | 2,235.80 | 3,084.95 | 5,030.15 | 5,371.05 | 5,426.10 | 3,466.10 | 28,576.54 |
| Nindiri | 2.52 | 8.50 | 15.87 | 8.79 | 7.19 | 2.94 | 3.44 | 11.57 | 17.05 | 17.41 | 15.10 | 24.84 | 130.22 |
| Campuzano | ...... | ...... | ...... | ...... | ...... | ...... | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| El Portillo | ...... | ...... | ...... | ...... | 61.00 | 61.00 | 67.10 | 74.35 | 127.15 | 50.00 | 39.25 | 35.50 | 515 35 |
| Sabana grande | 26.90 | 23.77 | 45.06 | 41.24 | 29.18 | 82.12 | ........ | 96.29 | 52.08 | 35.49 | 27.43 | 35.72 | 495 28 |
| Managua station | 144 85 | 240.30 | 194.25 | 236.70 | 197.[illegible] | 175.50 | 174 10 | 152.50 | 116.15 | 139 20 | 128.50 | 148.15 | 2,047.25 |
| Managua pier | 2,675 89 | 1,431.89 | 1,313 23 | 1,097.28 | [illegible] | 1,078.27 | 1,574.75 | 5,295.06 | 11,0[illegible].62 | 14,665.68 | 10,446.86 | 2,451.82 | 54,018.27 |
| Total | 4,802.98 | 3,861.56 | 4,138.22 | 3,450 96 | 3,706.27 | 4,006.15 | 5,751.05 | 10,409. | 18,115.27 | 22,015.38 | 18,314.26 | 7,706.21 | 106,274.60 |

A new railroad is under construction by the National Government, under contract with Messrs. Morris, Heyden & Co., of Managua, Mr. J. Wiest being the engineer-in-chief. It is to connect Masaya and Jinotepe, passing through a number of villages (pueblos), and is to be called "*Ferrocarril de los Pueblos.*" It is virtually a branch of the eastern line, and will be of extreme importance to the coffee planters and merchants in the Department of Carazo.

A tramway line, with steam service, connects the port of San Jorge on the great lake with Rivas. A horse tramway runs also from San Juan del Norte to Ciudad America. Another tramway exists in Bluefields, connecting this city with Bluff, its harbor. Also, a street tramway line in Granada may be mentioned.

There are lines of stages between Granada and Rivas (51 miles) and between Masaya and Jinotepe (18 miles), having a government subsidy and running daily during the summer or dry season.

Over 300 leagues of wagon roads (*caminos carreteros*), connecting with the railroads and other places, cross the country in the Departments of Chinandega, Leon, Managua, Masaya, Carazo, Granada, Rivas and Chontales. The traffic on these roads, which are very defective, and during the rainy season are impassable, is carried mostly on primitive ox-carts with two wooden wheels and without springs. These carts move very slowly up and down the hills, through rivers and creeks without bridges, very often also through swamps (jicarales) in tortuous track. There remains a macadamized road between the port of San Juan del Sur and the lake port of La Virgen, constructed about forty-five years ago by the New York and Californian Transit Company.

Toward the north, northeast and east of the Cordilleras, in the Departments of Nueva Segovia, Jinotega, Matagalpa and the larger part of Chontales, as also in many other regions of Nicaragua, the country is too mountainous for wagon roads, and communication between the different communities is only possible on the back of a horse or mule over difficult trails.

# XII.

## NICARAGUA CANAL.

Of great importance to Nicaragua, and also to the commerce of the world, is the construction of the Nicaragua Inter-Oceanic Canal. Fortunately, as the author of the book on Nicaragua, published by the Bureau of the American Republics, says, through a timely intervention of the celebrated engineer, Mr. A. G. Menocal, representing an American company, the execution of this work is still reserved for American enterprise. A contract to this end was ratified by the Nicaraguan Congress on April 24th, 1897, giving to the American company an exclusive privilege for 99 years to control this canal, allowing it also to construct a railroad along its route, and engaging not to permit the building of other railroads that might enter into competition for the traffic of the canal.

The Nicaragua Government, desirous that this water-way should be built with American money, obtained through Mr. Rodriguez, Minister of the Greater Republic of Central America in Washington, a renewed interest of the United States Government, which appointed three eminent engineers to re-survey the proposed route in order to obtain authentic data to quiet any controversy raised in Congress or by the press against the construction of this work.

It is interesting to read the history of this canal route and of that on the Isthmus of Panama, as well as of numerous other proposed inter-oceanic routes, between Colombia and the Isthmus of Tehuantepeque, with the various modifications proposed from time to time since Nuñez de Bilbao in 1513 crossed for the first time the Isthmus of Panama. There is extant a voluminous literature on this subject available to those who care for such research, but it cannot be introduced here without destroying the proportions of this monograph. In regard to the proposed Nicaragua Canal the following technical details are of great interest.

| | |
|---|---|
| Total distance from ocean to ocean | 169.4 miles |
| Canal in excavation | 26.8 " |
| Length of basins | 21.6 " |
| River San Juan | 64.5 " |
| Lake Nicaragua | 56.5 " |
| Free navigation in lake, river and basins | 142.6 " |
| Elevation of summit—level of canal above sea-level | 110 feet |
| Length of summit-level | 153.2 miles |
| Number of locks | 6 |
| Greatest lift of lock | 45 feet |
| Dimensions of locks | 650 feet long, 80 feet wide |
| Depth of canal | 30 feet |
| Least width at bottom | 100 " |
| Time-transit from ocean to ocean | 28 hours |
| Cost of canal, American estimate | $66,000,000 to $88,000,000 |

The San Juan River has a number of mouths, the largest being the Colorado, Taura and the San Juan, the latter flowing into the proposed harbor of the canal. The whole deltaic country consists of flat, alluvial lands in which there are numerous lagoons and swamps. These lands are covered with high grasses, bushes and trees enveloped by climbing vines. They extend for about 9¼ miles along the course laid out for the new canal. The canal is to be excavated through these low lands by machinery, and then to pass between low hills and through wooded valleys by means of a number of locks in close succession, the first one having a lift of 21 feet, the second, 1¼ miles further on, a lift of 30 feet, and a third, 2¼ miles beyond, a lift of 45 feet. Here, at an elevation of 106 feet above the sea, the summit level begins. A cut of about 3 miles in length and 141 feet deep must be made to connect the water of the canal with the waters of the San Juan River at Ochoa, a little below the mouth of the San Carlos River on the other side.

The San Juan River, called by the conquistadores the Desaguadero because it is the outlet of the Great Nicaragua

Lake, is the most peculiar tropical river on earth, being exempt from floods, such as, for example, occur in the upper Paraná River in very similar surroundings, where they rise to 39 meters above the average level of the year, producing a tremendous current and carrying down the stream an immense number of trees dangerous to any boat, and often making the regular ports inaccessible. This peculiarity of the San Juan River, which it has in common with the rivers connecting the Great North American Lakes, is of great advantage in the construction of this canal. At Ochoa a dam will be erected to deepen the water over the rapids, and especially to keep the upper waters of the San Juan River permanently at a level of 106 feet above the sea. These impounded waters form a continuation of the canal until the Great Lake is reached, the surface of which is 110 feet above the sea level. With the exception of about 28 miles above the Toro Rapids, where rock blasting and dredging to an average depth of 4½ feet will be required in several localities, the navigation channel will be 1,000 feet wide and from 28 to 130 feet deep. In the Great Lake of Nicaragua a channel 30 feet in depth will be secured by dredging through a soft mud bottom to an average depth of 10 feet for about 14 miles from the shore. This channel will have a width of 150 feet. From this point the course of navigation is across the lake to the mouth of the Rio Lajas. Thence the canal must pass for a distance of about 9 miles to the valley of the Rio Grande and the Tola basin, penetrating on its way a slight ridge that reaches a level of 43 feet above the lake. This work will require considerable earth and rock excavation. About 5½ miles further on, near La Flor, are to be located locks Nos. 4 and 5 and a large dam, to hold the waters of the Tola basin. The first of these locks terminates the summit level of the canal. The locks are to be close together, and to have a lift of 42½ feet each. About 1½ miles beyond is lock No. 6, the last of the western series, and designed to lower the waters of the canal to the level of the Pacific by means of a lift of from 21 to 29 feet, varying according to the state of the tides.

From lock No. 6 to Brito, the western terminus, there will be 1¼ miles of alluvial excavation. A port will have to be built at Brito, and very considerable sums are required for its construction. The harbor on the Atlantic side, at San Juan del Norte, is obstructed by drifting sand, and large sums will be needed for its restoration and maintenance. Enormous amounts of money will also be required to build the dam at Ochoa and the embankments in the river valley necessary to retain the navigable waters at the required height.

This inter-oceanic line may be the best attainable under existing circumstances, but there is an excellent port in the Bay of Salinas on the Pacific coast, which could be reached by bringing the canal thence to the Sapoa River. The isthmus there is about 7½ miles narrower than by the Lajas River route, although the summit to be surmounted is 80 feet higher. The harbor of Salinas is unexcelled, having an area of from 6 to 8 square miles, and being nearly circular; it is also without entering rivers and without sediment or drifting sands; is from 35 to 80 feet deep; is well protected from the southwest winds, and has shores which would permit direct landing. It is surrounded by a beautiful as well as healthful country. The United States Government would do well to instruct its engineers to take this harbor question once more into serious consideration. This line has been proposed by a very competent and distinguished French engineer, M. Belly, who once owned a concession for this canal, and devoted many years to the investigation of its problems. Even before him an eminent Swedish engineer, Mr. M. Oerstedt, recommended this same line from the Sapoa River to the Bay of Salinas.

# XIII.

## GENERAL CONSIDERATIONS.

Nicaragua was first sighted by Columbus in 1502, and it was first visited and explored by the Spanish military adventurer, Gil Gonzales de Avila, in 1522, who gives a very interesting account of his manner of taking possession of Nicaragua in his letter to the Emperor Charles V, dated March 6th, 1524. He says: "En el cielo, mas arriba del Sol, hay un Señor que hizo todas las cosas y los hombres y los que esto creen y lo tienen por Señor y son Cristianos, cuando mueren van arriba donde él está y los que no son Cristianos van á un fuego que está de bajo de la tierra! Hizoles ademas comprender que todos los que asi creian quedaban por vasallos del gran Rey de Castilla."

(In heaven, above the sun, there is a Lord who made all things and mankind, and those who believe this and accept Him as their Lord and are Christians; after death will ascend to where the Lord is, and those who are not Christians will go to a fire which is beneath the earth. I gave them to understand that all who believe this would be considered as vassals of the great King of Castile.)

The aboriginees of Nicaragua, who inhabited the country at the time of the conquest, were:

1. The Chorotegans, divided into Dirians, Nagrandans and Orotinans, who occupied the valley of the lakes and part of the highlands of Masaya.

2. The Chondales, who lived along the Cordillera de los Andes, facing the lakes.

3. The Niquirans and Cholutecans of Mexican origin who occupied Rivas, the islands of Ometepe and Zapatera, the Pacific coast and the Costa Rican territories of Guanacaste and Nicoya.

4. The Carabisi, who lived in the rest of the Nicaraguan territory, from the Cordilleras to the Atlantic Ocean, as savage tribes.

The languages spoken by them were Niquiran or Mexican, Chorotegan, Oritinan, Chondal, Pipil and Caribisi.

There are still many Indians of the Carabisi tribes along the rivers of the Atlantic slopes, who have changed their customs very little. Other Indians have blood mixed with that of the conquerors and their descendants, and have accepted their language and customs. There are also many Indians who, besides the Spanish, speak their own language, as in Masaya, Chontales, Carazo, Matagalpa, Nueva Segovia and Jinotega, where they have preserved their blood pure. Comparatively few full-blooded Indians remain in the Departments of Leon, Granada, Managua, Rivas and Chinandega. In the ports and places along the Atlantic coast the negro element prevails and much English is spoken. Negro blood is apparent also in a great number of Zambos and people of all shades of color.

The white people of pure blood are comparatively scarce among Nicaraguans. They are mostly found in the larger cities in the Departments of Leon, Chinandega, Granada and Rivas. A few thousand white foreigners are scattered through the ports and larger cities, in some mining districts and on some plantations. As seen in the demographic tables already given, the population of Nicaragua is only distinguished as Indian and Ladino. By Ladinos we may understand people of all colors and shades who wear clothes differing from the native Indian dress.

Nicaragua is an immensely rich and fertile country, but her development is far below her capabilities. That development is retarded by the character and customs of her people, and by revolutions which have brought the government authority into disrepute. Her agriculture is restricted and almost primitive; her mines improperly managed; her industries poorly organized; her labor inefficient and improperly handled; her commerce defective; her social life and her intellectual level, for want of education, comparatively low; and her municipalities are lacking in energy.

One reason for the backwardness of civilization probably lies in the fact that the people have always been poor, uneducated and inexperienced. They have not been trained to the function of self-government so as to make it the instrument of attaining the best results.

The lives of most of the people are quite simple and primitive, and they are indifferent to the refinements of life, the benefits of education, the enjoyment of luxury and the acquisition of wealth. Among them still exists a kind of caste based on color, established by the Spaniards, and the temperament of the lower classes exhibits an apathetic resignation to poverty and a lack of social ambition.

Withal they are a joyous people, full of gayety despite their poverty. Perhaps the very fertility of their soil and the mildness of their climate contribute to this temperament. They do not hunger, because they have an abundance of bananas and other fruits, of fish, pork, game, milk and eggs. They do not shiver, because the climate is warm, and a roof to protect against the rain is an adequate shelter. The generosity of nature leaves them little to desire worth the trouble of much exertion. Correspondent with these conditions, but also a hindrance to progress, is a disposition to leave everything for mañana (to-morrow). Little is done with promptness or completeness. It surprises these people to see our fevered impatience for results. Yet they have a sensitive self-respect and a disposition to emulate, if the task be not too arduous, the example of nations in the van of modern progress.

The mass of the people live in adobe houses with a roof of tiles. These are seldom floored or ceiled, and where the latter is found it is "*cielo raso*" (a frame over which white cotton cloth is stretched). Owing to the hot climate glass windows are not in vogue amongst ordinary people. The furniture is simple and scant. Bedsteads are without mattresses, and in the kitchen cooking is generally done over an open fire. In many of the houses the old Indian mill-stone is still in use.

In cities the houses are mostly arranged in streets of equal lengths, which cross at right angles. But how diverse the aspect of these cities is may be conjectured from facts like these; Jinotega, with 727 houses, has 49 streets; El Viejo, with 131 houses, has 25 streets; Somotillo, with 426 houses, has 28 streets; while Granada, with 4,494 houses, has only 21 streets. In a table in Chapter IV are given lists of towns and villages, with the number of their houses, streets and plazas, where the curious may find material for comparing their varied appearance.

In Granada, Leon and La Libertad a few streets are paved. Between the houses in some cities are walls of adobe or wood. In others the partition line is marked by a hedge of cereus or cactus, or by the same pinuela (bromelia) of which the fences are made that enclose the potreros in the country. There are usually a few fruit trees near the house, but seldom a flower garden. Street cleaning is generally left to the rain or the wind, to the pigs and to the zopilotes (*Cathartes aura*), the well known black bird seen everywhere in tropical and subtropical lands. Another street feature is the large number of naked children, mostly boys. The girls generally wear chemises. Very few cities have plazas of cultivated aspect. The capital, Managua, has none which could induce the people to resort to it. During the rainy season the streets are in a very bad condition. So also are the country roads. In the northern highlands and in the jicarales the roads at that season are practically impassable, and an order of the government has been seen prohibiting in certain districts wagon travel during the rainy season.

The ordinary clothing of men consists of a palm leaf hat, a shirt and a pair of trousers; of women it consists of a loose chemise, a cotton skirt and a silk sharol or rebozo worn over the shoulders. All go barefooted, except the Indian, who uses sandals. The higher class of Ladinos imitate European usages and try to keep up with that style. The national drink may be set down as *tiste*, or a mixture of pulverized roasted cacao, corn meal, sugar and water.

Social life is monotonous. There are no clubs, coffee houses, theatres, promenades or other places of amusement or of pleasure. The wealthy people, with few exceptions, live in patriarchal simplicity. The taste for music and other fine arts, for books and education is but slightly developed. There are a few comfortable and well furnished houses, but the greatest luxury consists in having many servants. The National Library, with about 8,000 volumes, is the only institution of the kind in the land. The national literature is small, and the number of books sold by different commercial houses is very limited.

The government commands inadequate respect. Its work goes on very slowly, and only a few sufficiently qualified men of social standing are in office. Slower still, it is said, are the proceedings of the judiciary of the country.

The tendency to outbreaks of political factions seems inveterate, and the government palace, as well as the dwelling house of the President and his family, is so guarded as to present the aspect of a barrack.

In a previous chapter it has been stated that the government aims to promote agriculture by giving premiums for plantations of coffee, rubber, cacao, indigo, textile plants, wheat, etc., also by giving certain privileges to planters and laborers engaged in such work, and to promote immigration by facilitating the acquisition of land. As to the latter, there is a degree fixing the purchase price of land. Under it there are charged 2 pesos for each manzana (about 1.79 acres) of national land suitable for stock raising, 3 for each manzana of agricultural land, and 5 for each manzana if well watered. One peso more is added for each manzana if useful timber stands on it. Two-thirds of the purchase must be paid in cash, the rest may be paid in documents of public credit. There is no tax on land, but there is a municipal tax of five mills per pesos on net income in some of the Departments, and also an export duty on coffee of 2 pesos per 100 pounds.

Agriculture in Nicaragua has been impeded by a lack of roads and of a proper skill and knowledge. Many inexperienced and incompetent capitalists have invested in plantations and mines only to lose.

The greatest difficulty agriculture encounters is the condition of labor. Nicaraguan laborers wish to be treated as hidalgos, and are full of tricks and the resources of deception. In other countries, as in Guatemala and Mexico, after the suppression of the so-called "encomiendos" and of forced labor, and after the abolition of the costly African slavery, a sort of peonage was invented. In this system poor families were allowed to dwell on the vast estates of the rich for a rental payable only in labor. This mode of payment was extended afterward to all debts for commodities advanced by the land owner or contracted in any other way.

In Nicaragua the people have had complete liberty, but there is now some restriction on it. There is an agricultural law which practically establishes the peonage system just described. The laborer is free to go where he likes and to work when he likes, provided he is out of debt. But as soon as he contracts a debt, it may be in receiving only a few pesos of his wages in advance, he immediately loses his liberty. He is now bound to work out this debt in labor, as also every other debt he may contract subsequently for money or goods furnished to him. His legal wages are 50 centavos per day (about 20 cents). As this labor is substantially the only kind to be obtained, the land owner uses every means to keep his laborers in constant debt. Every workman must be in possession of a special document showing where he works, but his landlord can transfer his claims to any one else who will pay the man's debts.

It has already been stated that there are no roads passable all the year around. In the mountainous region there are no cart roads at all, and the horse paths traversing the country are so bad during the rainy season that no transportation of goods can be attempted. It is clear that under such conditions freights will be so high as to put an end to the exchange of products, and especially of those of little value.

There are no agricultural societies nor other organizations through which these detrimental conditions can be considered and a change in them promoted. As there is no official register or record of titles (cadastre), and as there are no agricultural statistics, nor maps of detailed survey, it is difficult to establish an agricultural mortgage bank, an agency which would be of very much advantage, especially to the large planters of cacao, coffee, etc.

Nearly all men have commercial abilities in Nicaragua. But general as these qualities are, they go with a lack of spirit of association and enterprise, which also holds the country back in its economic and industrial progress. The same effect arises too from the prevalence of short-sighted jealousy, which is shown especially to men in public life. It is a great hindrance to industrial enterprise, to the development of personal talent and influence, to the acquisition of larger fortunes and to the elevation of men.

Mr. Levy, in his highly interesting work published in 1871, said truly that much of the existing defective conditions of this country were due to the trade restrictions of the Spanish colonial system. There was also a time when, for fear of pirates, everything from Central America had to go by way of Granada through the Great Lakes and the San Juan River to Cartagena, Colombia, and this traffic brought prosperity to Nicaragua. It induced its people to produce flour, achiote, cochineal, wine, precious woods, resins, fibres, etc., for exportation. This production ceased when Charles III in 1778 established free-trade between the colonies, and created a navy adequate to protect them from the invasion of pirates. Still later, the achievement of independence in 1821 almost completely extinguished the former prosperity. It was followed by ceaseless internal dissensions and revolutions, which diminished production in an extraordinary manner." As Mr. Levy says again, commerce was reduced to the sale of cacao, cheese, and articles of household industry to the neighboring countries, which commerce still exists, and to the importation of a very few articles from Europe. All the old capital disappeared with the Spaniards, and it is chiefly due to English merchants and bankers that Nicaragua continued to figure in the commercial world.

The connection with England came principally with the use of steamers in oceanic trade. Naturally, in order to open an exchange of products with a country exceedingly rich in resources, but not producing much, long credits have to be given, and to-day Nicaraguan commerce subsists almost wholly on the extended credits opened by European houses, by which practically they receive its coffee, hides, rubber, etc., in payment.

It can be said that Nicaragua, after a long stagnation, came again into commercial activity when the gold fields of California were discovered in 1849. Then an American Transit Company was organized, which brought the gold seekers and a current of emigrants through Nicaragua, *via* the San Juan River, the Great Lake and the Isthmus of Rivas, on their way to California. Many supplies were profitably sold to them, as also was afterward done when the Panama railroad was opened in 1858, and a regular steamship route to California established, which touched the Nicaraguan port of Corinto. The result of this was a general large increase of production and a sudden considerable augmentation of imports.

The subsequent economic history of Nicaragua, for want of better data, may be indicated by the following table of national rents taken from a pamphlet prepared by the Minister of Fomento in 1894.

| Years. | Pesos. | Years | Pesos. |
|---|---|---|---|
| 1858 | 216,405 | 1875 and 1876 | 2,324,998 |
| 1859 and 1860 | 798,260.25 | 1877 " 1878 | 2,587,005.80 |
| 1861 " 1862 | 809,182 05 | 1879 " 1880 | 3,042,967.10 |
| 1863 " 1864 | 1,118,281 | 1881 " 1882 | 3,535,642.88 |
| 1865 " 1866 | 1,473,724.15 | 1883 " 1884 | 3,806,123.09 |
| 1867 " 1868 | 1,229,191.25 | 1885 " 1886 | 3,569,414 46 |
| 1869 " 1870 | 1,357,092.15 | 1887 " 1888 | 3,070,069.01 |
| 1871 " 1872 | 1,732,760.05 | 1889 " 1890 | 4,405,838.98 |
| 1873 " 1874 | 2,011,670.25 | 1891 | 2,847,729.08 |

In the chapter on commerce the articles of actual export and import have been indicated. In order to deal successfully with the merchants or consumers of Nicaragua, and to take advantage of the resources and opportunities there opened, it is necessary that one's knowledge of the country should be exact and detailed. Therefore, this monograph brings together the most authentic facts concerning the geographical character of the country, its means of communication, its population and customs, statistics of production and consumption, its economic, financial, political and social condition, and its resources in general.

The importers, of whom lists have been given in the chapter on commerce, sell to the retail merchants on a cash basis, but on long credits; if the same men export they buy their goods direct from the producers, often making advances on the crops in articles of daily consumption, but using little money.

Small producers sell their own products in the local markets, where such facilities are provided, as in Leon, Managua, Masaya, Granada, or in the public plazas. Nearly every importer and merchant engages in a general trade; not seldom they also sell beans, cereals and other agricultural products of daily consumption.

Among the first requirements for doing business in Nicaragua are to sell cheaply, and to have a great variety of designs, colors, etc., but always in accordance with the tastes and usages of the natives. It is further important that goods should be put up with constant uniformity as to length, width and sizes; also to be punctual and exact in filling orders; to have the merchandise well and neatly labeled; to have it properly packed to suit the conditions of Nicaragua traffic, as for example, in small and strong boxes with the gross weight not exceeding 200 pounds, often with tin lining when they are to go by canoe, boat, or on mules' backs into the interior.

There can be no doubt that trade in Nicaragua will be a risky business so long as wholesale dealers grant long credits. The retail merchant, in turn, is often obliged to make the same concession in order to sell at all. The risk in later years is still greater, because of constant revolutions carried on with forced loans and voluntary or involuntary contributions, in connection with compulsory closing of stores or with selling goods at any price in order to cover the amount of dictated contributions.

In view of such abuses no commercial relations with native merchants can be recommended, and nobody knows whether the foreign houses will not also suffer. The English consul says that it is a safe rule not to rely upon the continued existence for twelve months of even the apparently good and strong houses under these circumstances.

History in Nicaragua really begins with the conquest by Gil Gonzalez de Avila in 1522, and his arrangements with the cacique, Nicarao, whose capital stood on the shore of the lake, then called Cocibolca, not far from the point where afterward rose the Villa of Nicaragua, now the city of Rivas.

The first Spanish governor of Nicaragua was Hernandez de Cordova, the founder of the cities of Granada, old Leon and others. The last governor was Miguel Gonzalez de Saravia.

After the year 1570 Nicaragua formed a part of the Capitania General de Guatemala. Public affairs were then in the hands of a "Concejo" or "Audiencia," called "Real Cancilleria," whose president was the head of the "Reino" or "Capitania General."

The limits of this monograph permit only a short relation of the principal historical events in Nicaragua. During the sixteenth and seventeenth centuries negro slaves were imported. Great earthquakes occurred, which changed the bed of the San Juan River. Pirates devastated Segovia, Granada and other parts of the country, and the fortresses of San Carlos and El Castillo on the San Juan River had to be built. In 1610 there was a great eruption of the volcano Momotombo.

During the eighteenth century there were continued invasions of the pirates, to which were added forays of the Zambos along the coast. The inhabitants of Segovia, Matagalpa, Jinotega and Sébaco were compelled to forsake their cities.

In 1762 the English governor of Jamaica invaded Nicaragua, penetrating the country along the line of the San Juan River, but he was killed.

On the 15th of September, 1821, the independence of Central America was proclaimed and Nicaragua as a State, entered the "Republica Federal de Centro-America," after a short connection with the Mexican Empire in 1822. This connection was formed by General Iturbide, but it was destroyed by a revolt led by Cleto Ordoñez, of Granada.

In 1838 the Federal Republic, which had only two presidents, Manuel José Arce and General Francisco Morazan, broke up, and Nicaragua became an independent republic. Now followed a government of twenty successive Directores Supremos, of whom the first was Pablo Buitrago and the last Fulgencio Vega. On the organization of the Republic the

Director received the title of President. The succession of Presidents is as follows:

| | |
|---|---|
| Frutos Chamorro | 1854 |
| Tomas Martinez | 1858 |
| Fernando Guzman | 1867 |
| Vicente Quadra | 1871 |
| Pedro Joaquin Chamorro | 1875 |
| General Joaquin Zavala | 1879 |
| Dr. Adan Cardenas | 1883 |
| Col Evaristo Carazo | 1887 |
| Roberto Sacasa | 1889 |
| General Santos J. Zelaya | 1898 |

Following the declaration of independence there were numerous civil wars, interrupted by an invasion of filibusters from the United States. In 1835 a tremendous eruption of the volcano Coseguina occurred.

In 1850 Spain recognized the independence of Nicaragua, and in the same year the first steamers, the "Director" and "Nicaragua," ran up the San Juan River, making a connection between the port of La Virgen on the Great Lake and the Atlantic Ocean, while from the port of La Virgen an overland transportation line to the Pacific Ocean was established.

In 1846 the culture of coffee was introduced; in 1847 occurred a British invasion; in 1851 Managua was made the capital of the Republic; in 1855 William Walker landed a filibustering expedition in Nicaragua and devastated the country for several years; in 1858 the boundary question with Costa Rica was settled; in 1876 the first telegraph line was established; in 1878 work on the national railroads began; and in 1894 the Mosquito Coast was incorporated.

In closing these brief statements it should be said that, after a revolution, the Liberal Party came into power in 1893, with which event the aristocratic type of government apparently disappeared, a type in which, like those of old Venice and of Greece, public affairs are directed wholly by large proprietors and capitalists, the people having little or no recognition. Whether this change is to the advantage of the country the future only can show.

# ANTARCTIC EXPLORATION:

## A PLEA FOR A NATIONAL EXPEDITION.

BY

SIR CLEMENTS R. MARKHAM, K.C.B., F.R.S.,

PRESIDENT R.G.S.

*WITH REPORT OF THE ROYAL SOCIETY'S ANTARCTIC CONFERENC*
*CORRESPONDENCE WITH THE GOVERNMENT; LETTER BY*
*ADMIRAL SIR R. VESEY HAMILTON, G.C.B.;*
*AND A MAP.*

LONDON:
THE ROYAL GEOGRAPHICAL SOCIETY, 1, Savile Row.
1898.

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# ANTARCTIC EXPLORATION:

## A PLEA FOR A NATIONAL EXPEDITION.

### INTRODUCTION.

**By Sir CLEMENTS R. MARKHAM, K.C.B., F.R.S., President R.G.S.**

THE great scientific importance of despatching a British Antarctic Expedition, at an early date, has been fully explained by the highest authorities, and has, indeed, been admitted by the Lords Commissioners of the Admiralty, in the letter of their Secretary to the President of the Royal Geographical Society, dated April 6, 1897. The paper read by Sir John Murray before the Royal Society on February 24, 1898, and the discussion which followed, has since placed the scientific urgency of despatching such an expedition beyond further question. But there are other reasons which, when combined with considerations of scientific utility, must appeal to the patriotism of every loyal subject of the Queen.

Antarctic exploration has hitherto been conducted by the Navy, and belongs to it by right of noble work well performed during more than a century. It was, consequently, with a confident expectation of success that the subject was brought to the notice of her Majesty's Government. In the first place, Antarctic exploration had always been the work of our Government. Captain Cook's second voyage was specially designed and despatched for Antarctic research. Captain Weddell was a naval officer. The famous expedition of Sir James Ross was fitted out and sent by the Admiralty, as was the *Challenger* Expedition. For, apart from the benefits conferred on the whole civilized world by the results of exploring and surveying expeditions, they are also felt to be an admirable training-ground for the Navy in time of peace, more especially in these days, when our officers and men are not so much at sea as formerly. For they offer work requiring special care and coolness of judgment, work needing an accurate decision to be formed and acted upon in a moment, work presenting novel situations and suggesting new ideas. All these kinds of work strengthen and form the characters of officers and men, widen their perceptions, and increase their self-reliance. An officer will not find exactly the same work in war service, but the work he has seen when employed on special service during peace-time will enrich his mind with many ideas, and furnish him with experiences which cannot fail to increase his efficiency. It also stimulates the inventive faculty in cases where it is latent. While offering opportunities for distinction in time of peace, expeditions of discovery have, for the above reasons, proved to be admirable training-schools for the Navy, and accordingly successive Governments have encouraged and despatched them, down to that of Lord Beaconsfield, who fully recognized the importance of encouraging that "spirit of enterprise which has ever distinguished the English people." It will be an evil day for our navy if this policy is reversed.

The state of foreign politics has never before been put forward as an excuse for abandoning naval exploratory work. Captain Cook was sent on his third voyage when France, Spain, and the American colonies were combined against us. The expeditions of Vancouver, Flinders, and Broughton were despatched in the midst of our war with revolutionary France; and we never were so close on the verge of war as in the year when Sir James Ross first penetrated the Antarctic pack. At present we enjoy friendly relations with all the maritime nations of the Earth, and some of them, especially Germany, are about to fit out exploring expeditions, confident in the continuance of peace, or properly feeling that such work should be pushed forward under any circumstances. Such had always been the policy of former British administrations.

For these reasons it was believed that an Antarctic expedition would be undertaken by our Government, when its scientific importance and the advantages to be derived from such an enterprise were submitted for its consideration by competent authorities. It was, therefore, with feelings of surprise, indeed of astonishment, that we received the announcement that, under existing circumstances, her Majesty's Government is unable either to undertake or to assist the despatch of an Antarctic expedition. Our Navy is thus deprived of its immemorial right to take the lead in the work of discovery.

It remains to be seen whether, by this decision of the Government, the nation is also to be made to resign its old and well-won position as the first in exploration and discovery. It is a question for the wealthy among us. Men of science are ready. Many naval officers and naval-reserve officers would be—indeed are—volunteers. The spirit of enterprise is as bright and fresh as ever among those who have to do the work. Funds alone are needed; and an appeal is now made to the patriotic feelings of those who possess the power, which wealth supplies, of maintaining the credit of our country. The Council of the Royal Geographical Society offers to head the list with £5000. Ten such subscriptions would enable an expedition to be undertaken. I venture urgently to represent to my countrymen that it is not only the loss of valuable knowledge in all branches of science that is at stake, but the prestige and credit of our country.

This pamphlet contains the paper on the results of Antarctic discovery by Sir John Murray, read before the Royal Society on February 24, 1898, and the discussion which followed, in which the scientific results to be derived from Antarctic exploration are fully explained; also the replies from the Admiralty, dated April 6, 1897, and from the Prime Minister, dated June 9, 1898, to letters from the President of the Royal Geographical Society submitting the reasons for the despatch of an Antarctic expedition; and, lastly, the admirable letter of a former first Sea Lord of the Admiralty, Sir Vesey Hamilton.

## THE ROYAL SOCIETY'S ANTARCTIC MEETING.

On February 24, 1898, the Royal Society held one of their special meetings for discussion, at which, in addition to Fellows of the Society, other specialists are invited to take part. The subject was "The Scientific Advantages of an Antarctic Expedition;" and Sir John Evans, Treasurer of the Royal Society, who occupied the chair, intimated that the discussion should be strictly limited to the scientific advantages, and should take no account of any possible economic or political benefits which might be anticipated as a result of exploration.

The meeting was very well attended, almost all the representative scientific men in London who are interested in the sciences dealing with the Earth being present. Dr. Nansen was also at the meeting; and Dr. Neumayer, of the Deutsche Seewarte, came specially from Hamburg to add his voice to the demand for an expedition, which he was the first, now nearly thirty years ago, to urge as a necessary sequel to Ross's work. The proceedings were opened by a general paper by Sir John Murray, K.C.B., of the *Challenger* Expedition, whose map in the *Geographical Journal* for January, 1894, is appended, revised and brought up to date.

Dr. MURRAY said: From a scientific point of view, the advantages to be derived from a well-equipped and well-directed expedition to the antarctic would, at the present time, be manifold. Every department of natural knowledge would be enriched by systematic observations as to the order in which phenomena coexist and follow each other, in regions of the Earth's surface about which we know very little or are wholly ignorant. It is one of the great objects of science to collect observations of the kind here indicated, and it may be safely said that without them we can never arrive at a right understanding of the phenomena by which we are surrounded, even in the habitable parts of the globe.

Before considering the various orders of phenomena, concerning which fuller information is urgently desired, it may be well to point out a fundamental topographical difference between the arctic and antarctic. In the northern hemisphere there is a polar sea almost completely surrounded by continental land, and continental conditions for the most part prevail. In the southern hemisphere, on the other hand, there is almost certainly a continent at the south pole, which is completely surrounded by the ocean, and, in those latitudes, the most simple and extended oceanic conditions on the surface of the globe are encountered.

One of the most remarkable features in the meteorology of the globe is the low atmospheric pressure at all seasons in the southern hemisphere south of latitude 45° S., with the accompanying strong westerly and north-westerly winds, large rain and snow fall, all round the south polar regions. The mean pressure seems to be less than 29 inches, which is much lower than in similar latitudes in the northern hemisphere. Some meteorologists hold that this vast cyclonic system and low-pressure area continues south as far as the pole, the more southerly parts being traversed by secondary cyclones. There are, however, many indications that the extreme south polar area is occupied by a vast anti-cyclone, out of which winds blow towards the girdle of low pressure outside the ice-bound region. All our knowledge of the meteorological conditions of the antarctic is limited to a few observations during the midsummer months, and these indicate that the temperature of the snow-covered antarctic continent is even at that time much lower than that of the surrounding sea. There would appear to be good reasons for believing that the region of the south pole is covered by what may be regarded practically as a great permanent anti-cyclone, with a much wider extension in winter than in summer. It is most likely that the prevailing winds blow out from the pole all the year round towards the surrounding sea, as in the case of Greenland, but, unlike Greenland, this area is probably seldom traversed by cyclonic disturbances. But what has been stated only shows how little real knowledge we possess concerning the atmospheric conditions of high southern latitudes. It is certain, however, that even two years' systematic observations, within these regions would be of the utmost value for the future of meteorological science.

From many points of view, it would be important to learn something about the condition and distribution of antarctic sea-ice during the winter months, and especially about the position of the huge table-shaped icebergs at this and other seasons of the year. These flat-topped icebergs, with a thickness of 1200 or 1500 feet, with their stratification and their perpendicular cliffs, which rise 150 or 200 feet above and sink 1100 or 1400 feet below the level of the sea, form the most striking peculiarity of the antarctic ocean. Their form and structure seem clearly to indicate that they were formed on an extended land surface, and have been pushed out over low-lying coasts into the sea. All antarctic land is not, however, surrounded by inaccessible cliffs of ice, for along the seaward faces of the great mountain ranges of Victoria Land the ice and snow which descend to the sea apparently form cliffs not higher than 10 to 20 feet, and in 1895 Kristensen and Borchgrevink landed on a pebbly beach, occupied by a penguin rookery, at Cape Adare without encountering any land-ice descending to the sea.

Is there an antarctic continent? It has already been stated that the form and structure of the antarctic icebergs indicate that they were built up on, and had flowed over, an extended land surface. As these bergs are floated to the north and broken up in warmer latitudes, they distribute over the floor of the ocean a large quantity of glaciated rock fragments and land detritus. These materials were dredged up by the *Challenger* in considerable quantity, and they show that the rocks over which the antarctic land-ice moved were gneisses, granites, mica-schists, quartziferous diorites, grained quartzites, sandstones, limestones, and shales.

The fossil remains which have been found in the antarctic indicate in these areas a much warmer climate in past times. We are thus in possession of abundant indications that there is a wide extent of continental land within the ice-bound regions of the southern hemisphere.

It is not likely that any living land-fauna will be discovered on the antarctic continent away from the penguin rookeries. Still, an antarctic expedition will certainly throw much light on many geological problems. Fossil finds in high latitudes are always of special importance.

In any antarctic expedition magnetic observations would, of course, form an essential part of the work to be undertaken, and the importance of such observations has been frequently dwelt upon by eminent physicists and navigators. Should a party of competent observers be stationed at Cape Adare for two years, pendulum observations could be carried out there and at other points within the antarctic, or even on icebergs. It might be possible to measure a degree on the antarctic continent or ice-cap, which would be a most useful thing to do. By watching the motions of the icebergs and ice from land at Cape Adare, much would be learnt about oceanic currents, and our knowledge of the tides would be increased by a systematic series of tidal observations on the shores of the antarctic continent, where we have at present no observations. The series of scientific observations here indicated would fill up many other gaps in our knowledge of the physical conditions of these high southern latitudes.

In regard to the depth of the ocean immediately surrounding the antarctic continent, we have at present very meagre information, and one of the objects of an antarctic expedition would be to supplement our knowledge by an extensive series of soundings in all directions throughout the antarctic and southern oceans. It would in this way be possible, after a careful consideration of the depths and marine deposits, to trace out approximately the outlines of the antarctic continent. The depths found by the *Challenger* in the neighbourhood of the antarctic circle were from 1300 to 1800 fathoms, and further north the *Challenger* soundings ranged from 1260 to 2600 fathoms. To the south-west of South Georgia, Ross paid out 4000 fathoms of line without reaching bottom. In the charts of depth which I have constructed I have always placed a deep sea in this position, for it appears to me that Ross, who knew very well how to take soundings, was not likely to have been mistaken in work of this kind.

The deposits which have been obtained close to the antarctic continent consist of blue mud, containing glauconite, made up for the most part of detrital matters brought down from the land, but containing a considerable admixture of the remains of pelagic and other organisms. This gives place further north to diatom ooze, and then red clay. Since the views, however, as to the distribution of deep-sea deposits throughout these high southern latitudes are founded upon relatively few samples, it cannot be doubted that further samples from different depth in the unexplored regions would yield most interesting information.

The mean daily temperature of the surface waters of the antarctic, as recorded by Ross, to the south of lat. 63° S. in the summer months, varies from 27·3° to 33·6°, and the mean of all his observations is 29·85°. His mean for the air during the same period is somewhat lower, being 28·74°. In fact, all observations seem to show that the surface water is warmer than the air during the summer months. The *Challenger* observations of temperature beneath the surface indicate the presence of a stratum of colder water wedged between warmer water at the surface, and warm water at the bottom.

In the greater depths of the antarctic, as far south as the antarctic circle, the temperature of the water varies between 32° and 35° Fahr., and is not, therefore, very different from the temperature of the deepest bottom water of the tropical regions of the ocean. The presence of this relatively warm water in the deeper parts of the antarctic ocean may be explained by a consideration of general oceanic circulation. While these views as to circulation appear to be well established, still a fuller year, with improved thermometers and sounding-machines. Indeed, all deep-sea apparatus has been so much improved, as a result of the *Challenger* explorations, that the labour of taking observations has been very much lessened.

In the surface waters of the antarctic regions there is a great abundance of diatoms and other marine algæ. These floating banks or meadows form primarily, not only the food of pelagic animals, but also the food of the abundant deep-sea life which covers the floor of the ocean in these south polar regions. Pelagic animals, such as the copepods, amphipods, molluscs, and other marine organisms, are also very abundant, although species are fewer than in tropical waters. Some of these animals seem to be nearly, if not quite, identical with those found in high northern latitudes, and they have not been met with in the intervening tropical zones.

A peculiarity of the tow-net gatherings made by the *Challenger* Expedition in high southern latitudes, is the great rarity or absence of the pelagic larvæ of benthonic organisms, and in this respect they agree with similar collections from the cold waters of the arctic seas. At present we have no information as to the shallow-water fauna of the antarctic continent; but, judging from what we do know of the off-lying antarctic islands, there are relatively few species in the shallow waters in depths less than 25 fathoms. On the other hand, life in the deeper waters appears to be exceptionally abundant. An interesting point connected with the benthonic fauna and flora of these high southern latitudes is that, as with pelagic organisms, many of the species are identical with, or closely allied to, those of the arctic regions, and are not represented in the intermediate tropical areas. The *Challenger* researches show that nearly 250 species taken in high southern latitudes occur also in the northern hemisphere, but are not recorded from the tropical zone. Fifty-four species of seaweeds have also been recorded as showing a similar distribution. Bipolarity in the distribution of marine organisms is a fact, however much naturalists may differ as to its extent and the way in which it has originated.

What is urgently required with reference to the biological problems here indicated is a fuller knowledge of the facts, and it cannot be doubted that an antarctic expedition would bring back collections and observations of the greatest interest to all naturalists and physiologists, and without such information it is impossible to discuss with success the present distribution of organisms over the surface of the globe, or to form a true conception of the antecedent conditions by which that distribution has been brought about.

There are many directions in which an antarctic expedition would carry out important observations besides those already touched on in the foregoing statement. From the purely exploratory point of view date; for the further progress of scientific geography, it is essential to have a more exact knowledge of the topography of the antarctic regions. This would enable a more just conception of the volume relations of land and sea to be formed, and in connection with pendulum observations some hints as to the density of the suboceanic crust might be obtained.

In case the above sketch may possibly have created the impression that we really know a great deal about the antarctic regions, it is necessary to re-state that all the general conclusions that have been indicated are largely hypothetical, and to again urge the necessity for a wider and more solid base for generalizations. The results of a successful antarctic expedition would mark a great advance in the philosophy—apart from the mere facts—of terrestrial science.

No thinking person doubts that the antarctic will be explored. The only questions are: When? and By whom? I should like to see the work undertaken at once, and by the British Navy. I should like to see a sum of £150,000 inserted in the estimates for the purpose. The Government may have sufficient grounds for declining to send forth such an expedition at the present time, but that is no reason why the scientific men of the country should not urge that the exploration of the antarctic would lead to important additions to knowledge, and that, in the interests of British science, the United Kingdom should take a large part in any such exploration.

The Duke of Argyll, who was unable to be present, sent in writing his views as to the bearing of antarctic research on the problem of the glacial period. After pointing out that the study of Greenland has not solved the problem of the movements of an extensive ice-sheet, and after indicating the diverse views on this subject held by geologists, he concluded: These questions, and a hundred others, have to be solved by antarctic discovery; and until they are solved we cannot argue with security on the geological history of our own temperate regions. The antarctic continent is unquestionably the region of the Earth in which glacial conditions are at their maximum, and therefore it is the region in which we must look for all the information attainable towards, perhaps, the most difficult problem with which geological science has to deal.

Sir Joseph Hooker said that, next to a consideration of the number and complexity of the objects to be attained by an antarctic expedition, what dwelt most in his imagination was the vast area of the unknown region which is to be the field for investigation—a region which in its full extension stretches from lat. 60° S. to the southern pole, and embraces every degree of longitude.

The appearance of the circumpolar pack girdling the ocean about the antarctic circle naturally suggested questions as to its origin, to none of which could a fuller answer be given than that the floating ice-fields originated over extensive areas of open water in a higher latitude than they now occupy, that they are formed of frozen ocean water and snow, and that winds and currents have brought them to where we now find them. The other great glacial feature of the antarctic area is the ice-barrier which Ross traced for 300 miles in the 78th and 79th degree of south latitude, maintaining throughout its character of an inaccessible precipitous ice-cliff (the sea-front of a gigantic glacier) of 150 to 200 feet in height. It probably abuts upon land, possibly on an antarctic continent; but to prove this was impossible on the occasion of Ross's visit, for the height of the ship's crow's-nest above the sea-surface was not sufficient to enable him to overlook even the upper surface of the ice. The speaker saw no other method of settling this important point, except the use of a captive balloon, an implement with which he hoped future expeditions would be supplied. There were several occasions on which a balloon might have been advantageously used by Ross when near the barrier, and more when it would have greatly facilitated his navigation of the pack. He regarded the biological possibilities of an expedition as likely to commence a new epoch in that science.

Dr. NANSEN laid stress on the importance of exploring the antarctic land. He doubted whether Dr. Murray's theory of a continuous continent was correct; possibly there was only a number of groups of islands. But there was no doubt that the ice-sheets were far more extensive than that of Greenland, and the study of them would yield more important results. He did not foresee any difficulty in reaching the antarctic ice-sheets. Ice-navigation was now much better understood than in Ross's time, steam-power of itself giving an inestimable advantage, for it was just when the pack-ice was open in calm weather that a sailing ship was unable to attempt to navigate it. The risk of being caught by the ice and shut up for a length of time was much less in the south than in the north polar regions, for the open ocean all round would reduce the probability of severe pressures in the pack. Captive balloons would prove of great value. The importance of pendulum observations on the ice-sheet was very great, and he did not believe that the nature of the ice would make travelling difficult once the surface of the ice-sheet was reached. He thought, however, that it was possible that the thickness of the ice-sheet might be so great as to interpose serious difficulties from the effects of the altitude alone, for the height might probably be as much as 20,000 feet. He hoped that a British expedition would be sent out, and that expeditions from other countries would co-operate with it by simultaneous observations in other parts of the area.

Dr. NEUMAYER strongly urged the importance of insisting on the purely scientific point of view in inaugurating a new expedition. The determination of the gravity constant at a number of points within the antarctic circle was of high importance, and the International Geodetic Commission had expressed their conviction that a gravity survey in that region would be of the greatest benefit to higher geodetic theories.

The study of terrestrial magnetism also demanded a great number of observations in the antarctic area. While the theory of terrestrial magnetism had been placed by Gauss on a very high level, physical observations remained sadly behind. The south polar area promised much more interesting results than the north; the distribution of magnetism seemed to be simpler, but it was scarcely known. It was interesting to notice that the two foci of maximum magnetic intensity were situated to the south of the Australian continent, where magnetic storms were extremely numerous and strong; whereas on the opposite side, the circumpolar stations of 1882–93 at Orange bay and South Georgia showed a remarkably small number of disturbances. Similarly, while a great number of instances of aurora displays were recorded at Melbourne and in the seas south of Australia in 1882–83, none were seen in South Georgia. From every point of view, an expedition to study the magnetic phenomena in the far south was eminently desirable, and he trusted that the work would be carried out simultaneously by expeditions from several countries.

Sir CLEMENTS MARKHAM said: I need scarcely say how fully I concur in every word that has fallen from Dr. Murray on the subject of the scientific results, and more especially of the geographical results, of an antarctic expedition. It is quite sufficient to point out the vast extent of the unknown area, and that no area of like extent on the surface of the Earth ever failed to yield results of practical as well as purely scientific value by its exploration. But there is much more to be said in the present instance, because the little that we do know of the antarctic regions points unmistakably to the very great importance and interest of the results that are certain to attend further research. The ice-barrier discovered by Sir James Ross is known to be the source of the immense ice-islands of the southern polar sea. But it has only been seen for a distance of 300 miles. It requires far more complete examination before any approach to an adequate knowledge can be obtained respecting the extent and nature of the supposed ice-cap in its rear. We know that the southern continent is a region of actual volcanic activity, but the extent, nature, and effects of that activity remain to be ascertained. On the antarctic circle land has been sighted at numerous points, but it is unknown whether what has been seen indicates small islands or a continuous coast-line. Dr. Murray has pointed out that the whole southern continent is certainly not bounded by such an ice-wall as was seen by Sir James Ross, and is not covered by an ice-cap. But the extent of the ice-cap and of the uncovered land is unknown. We are ignorant of the distribution of land and sea, and of ice and water in summer, and of causes which influence such distribution. The investigation of each one of these points, and of many others, will lead to further discoveries as yet undreamt of, which must needs be of the deepest interest to geographers. There are eminent men present who will no doubt refer to the results of exploration in other branches of science. Combined together, they make the exploration of the antarctic regions the greatest and most important work that remains to be achieved by this generation.

Dr. A. BUCHAN limited his remarks to the single important point of the relation of atmospheric pressure to the prevailing winds. He stated that, according to Ferrel's theory of atmospheric circulation on the globe, as set forth by Prof. Davis, an area of low pressure existed over the south pole, towards which surface winds blew in on all sides. But the observations of all antarctic expeditions which had crossed the polar circle showed that the barometer continued to rise as they proceeded southward, and that the winds blew, with scarcely an exception, from a southerly quarter or outward from the pole. This indicated that a region of high atmospheric pressure was central over the south pole, and the climate there ought to be free from excessive precipitation, and favourable to exploration. Were Ferrel's theory correct, the excessive precipitation which would necessarily result would render the antarctic region almost inaccessible to the most intrepid explorer. A well-equipped antarctic expedition was necessary in order to make observations, which should fix the position of the great ring of low atmospheric pressure surrounding the globe in the southern ocean, a feature as important in oceanography as it was in meteorology.

Sir ARCHIBALD GEIKIE said that geologists would hail the organization and despatch of an antarctic expedition in the confident assurance that it could not fail to advance greatly the interests of their science. It would throw light on the nature of the rocks forming the antarctic land, and on the evidence these rocks contain bearing on the history of climate in the past. It would let us see the extent to which the known fossiliferous formations can be traced towards the poles, and the bearing which they have on the evolution of terrestrial topography. The history of volcanic action in the past would also be elucidated, and the conditions under which it is now continued in the polar regions. It might be seen whether in high latitudes vulcanism, either in its internal magmas or superficial eruptions, manifests peculiarities not observable nearer the equator; what is the nature of the volcanic products now being ejected; and other important points. Again, the influence of antarctic climate on the rocks exposed to its action, and the effects of contact between ice or snow and streams of lava. Finally, the study of the physics of antarctic ice would be of value with regard to the history of the Ice age in northern Europe and America.

Dr. P. L. SLATER, although not looking on the antarctic regions as particularly favourable for zoological work on the higher land vertebrates, felt that an expedition would be very valuable. There was doubtless a rich marine and sea-bird fauna which ought to be investigated; but he regarded the most promising field to be the palæontological.

The few fossils obtained from the far south were very interesting, and further finds would be sure to lead to valuable results.

Prof. D'Arcy W. Thompson spoke enthusiastically of the wealth of the field of zoological research in the antarctic regions. He pointed out that all we know of the deep-sea life of the antarctic areas is the result of eight hauls of the dredge on the *Challenger;* but these dredgings were the very richest of the whole cruise. He could not accept Dr. Murray's "bipolar theory" of the distribution of species as proved, and wished to see it tested by an expedition. Even if that theory were broken down, antarctic explorations would lead to other generalizations, not less interesting, to take its place.

Sir W. J. L. Wharton, in a few words, pointed out that if an expedition under naval discipline were decided on, it would be extremely popular amongst both officers and men.

Sir John Evans, remarking that the meeting had been prolonged to an hour unprecedented in the records of the Royal Society, expressed his gratification at the high level maintained in the discussion, and said that all were unanimous in the belief that immense advantages to science would result from a new exploration of the antarctic regions.

## LETTER FROM THE ADMIRALTY TO THE PRESIDENT OF THE R.G.S.

Admiralty, April 6, 1897.

Sir,—Referring to the communications which have passed between the First Lord of the Admiralty and yourself in respect to an Antarctic Expedition, which subject has been brought prominently under the notice of the Royal Geographical Society, of which you are President, I am commanded by my Lords Commissioners of the Admiralty to state that they have taken the matter into careful consideration; and, while they regret to be unable to take any direct part in the organizing of such an expedition, at the same time they regard the enterprise as one which is important in the interests of science.

Although the present exigencies of the naval service prevent them from lending officers, as they would necessarily be out of reach for a protracted period, in case of being required for the active duties of the fleet, their Lordships will watch the result with great interest, and will be prepared to aid in the outfit of an expedition by a loan of instruments; further, they would be happy to place at the disposal of those chosen to conduct an expedition any experience which may have been gained in the past, and which might possibly be useful.

I am, etc.,
(Signed) Hy. Vansittart Neale.

Sir Clements Markham, K.C.B.

## LETTER FROM THE PRIME MINISTER'S PRIVATE SECRETARY TO THE PRESIDENT.

Foreign Office, June 9, 1898.

SIR,—With reference to your letter of October 26 last, in which you submitted to Lord Salisbury the reasons which, in the opinion of the Royal Geographical Society, made it desirable that an Antarctic Expedition should be taken by or with the aid and sanction of Her Majesty's Government, I am directed by his Lordship to express his regret that, after carefully consulting the authorities at the Treasury and the Admiralty, he is unable, under existing circumstances, to hold out any hope of Her Majesty's Government embarking upon an undertaking of this magnitude.

I am to add that Lord Salisbury has made inquiry through the Secretary of State for the colonies as to the attitude of the Australian colonies towards the proposal for further Antarctic exploration; and he is informed that, at the recent conference of Premiers held in Melbourne in March last, it was resolved that those colonies should take no joint action in the matter, and the co-operation anticipated by the Society from that quarter will not apparently be afforded by the Colonial Government.

I am, etc.,
(Signed) SCHOMBERG K. MCDONNELL.

Sir Clements Markham, K.C.B.

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## LETTER ON ANTARCTIC DISCOVERY.

BY ADMIRAL SIR R. VESEY HAMILTON, G.C.B., FORMERLY FIRST SEA LORD OF THE ADMIRALTY.

(From the *Times* of July 25, 1898.)

SIR,—The refusal of the Government to despatch a naval antarctic expedition has caused considerable surprise, especially since the Admiralty has fully admitted the great scientific importance of such an enterprise; nor can this be unknown to so eminent a scientific Prime Minister as this country now possesses. Indeed, after the recent discussion at the Royal Society, there can be no question as to the desirableness of such an expedition. The science of navigation gained immensely by the discovery of the north magnetic pole in 1831 or 1832 by the late distinguished scientific explorer Admiral Sir James Ross, and by the proximity to the south magnetic pole he attained in his memorable antarctic voyage from 1839 to 1843, combined with the numerous magnetic observatories scattered over the world. For the past 150 years discovery has been considered part of the work of the navy. The Government that sent out Byron in 1764 remarked in his instruction, "Whereas nothing can redound more to the honour of this nation, as a maritime power, to the dignity of the Crown of Great Britain, and to the advancement of the trade and navigation thereof, than to make discoveries of countries hitherto unknown," etc. For countries substitute "science," and the same applies equally to-day. Most of the coasts of the world have been surveyed by the British navy, and this invaluable information is given as freely to the rest of the world as are our colonies thrown open to foreign merchants.

The fourth centenary of Vasco de Gama's voyage to India has been commemorated this year in Portugal. Columbus started on his first voyage in 1492, equipped for it by the magnanimous spirit of Isabella of Castile, who, when it was represented to her that the Treasury was exhausted by the expenses of the Moorish war only just terminated, replied, "I will assume the undertaking for my own crown of Castile, and am ready to pawn my jewels to defray the expenses of it if the funds in the Treasury be found inadequate." Even during their hundred years of war with Spain for independence, the Dutch sent out expeditions of discovery and started trading companies. These countries all lost their maritime supremacy when they ceased to be in the van of exploration. We do not read in those days of the necessity of keeping officers in seas where they can "quickly be recalled," nor did we, in Cook's last voyage, which was made during the greatest struggle we were ever engaged in, viz. with our revolted colonies, and the fleets of France, Spain, and Holland, etc. The eight lieutenants in that expedition did not cause us the loss of our maritime supremacy; nor can any one for a moment suppose a similar number will do so now when engaged on what all the scientific world consider almost a necessity. Vancouver and Broughton left England in April, 1791, when the political horizon was quite as clouded as at present, and as they did not return till July, 1796, when the great war with France had been going on for over two years and the expedition was not recalled, it is evident our maritime supremacy was not endangered by its absence. Flinders was sent to Australia a few years after Vancouver's return, when war was still going on, and was detained a prisoner by the French at the Mauritius for six years—I believe a solitary instance of a scientific voyage so terminating, as in all instructions given to explorers they are directed not to commit any act of warlike aggression, and an understanding is come to with all maritime nations to treat them as non-combatants. The maritime supremacy of Great Britain must be founded on a quicksand if it cannot spare eight or nine lieutenants to enable it to maintain its supremacy in maritime discovery. If it cannot do this, it must, as an eminent authority writes to me, "take a back seat," as have the countries already mentioned, and they still retain "a back seat." If the Government persist in objections which I am sure a naval court-martial would pronounce "frivolous and vexatious," I agree with the President of the Royal Geographical Society in hoping "that there are patriotic men amongst us in a position to stand in the breach, and to supply the funds needed for a national antarctic expedition under the auspices of the R.G.S." That most important scientific discovery, the north magnetic pole, we owe to the munificence of Sir Felix Booth, an eminent merchant, who fitted out the expedition under Sir John Ross, whose nephew, as already mentioned, was the actual discoverer. Dudley Diggs, Wolstenholm, and other rich London merchants, two hundred years previously, were munificent patrons of arctic exploration, well shown by their names being attached to prominent headlands, etc. In the antarctic regions the name of Enderby is immortalized owing to the discoveries of Weddel, Balleny, and Biscoe, who, in command of sealers in his employ, were also directed to look on geographical discovery as an important addition to their commercial business.

The discovery of the south magnetic pole may, perhaps, be made by an *employé* of a modern Sir Felix Booth. It has to be made, in the interests of science and commerce, and it ought to be made by an *employé* of this country. A naval expedition is best fitted for pioneering exploration, more especially where it may be necessary to winter. To select officers for a private pioneering antarctic expedition is a very difficult matter. To follow up a trail is easier than to find one.

I had hoped, sir, the leader in the *Times* a short time ago would have stirred up a more competent pen to write on this very important national, or I might say international, subject than mine.

"England was made by its adventurers;" there are numbers of them still in existence, ready to undergo hardships and run all risks for the advancement of science; but, unfortunately, adventurers, as a rule, lack the wherewithal to carry out their meritorious aspirations.

At the present moment an expedition is being fitted out for antarctic exploration by an influential publisher, who, I cannot but think, unfortunately has given the command to a foreigner instead of one of his own countrymen; however, he has a right to do as he likes with his own. I wish it every success, and that his name may be on future maps like that of Sir F. Booth, the north magnetic pole being in Boothia Land. One cannot but lament Mr. Harmsworth had not devoted his energy to antarctic instead of arctic discovery, where there is a richer harvest ready for the reaper.

I am, Sir, your obedient servant,

R. VESEY HAMILTON.

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